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ANNUAL REPORT

OF THE



BOARD OF CATTLE COMMISSIONERS

1895

OF THE

COMMONWEALTH OF MASSACHUSETTS,

IN ACCORDANCE WITH SECTION 51 OF CHAPTER 491 OF
THE ACTS OF 1894.

JANUARY 10, 1896.

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REPORT.

To the Honorable Senate and House of Representatives.

In accordance with the requirements of section 51 of chapter 491 of the Acts of the year 1894, the Board of Cattle Commissioners begs to present the following report of its work for the year 1895.

In the report of this Board presented to your honorable body on Jan. 10, 1895, and printed as Public Document No. 51 of that year, an extended report was given of the work of this Board conducted under the law of 1894 (chapter 491) up to Dec. 15, 1894. The law of 1894 as a whole has continued to be the basis of the work of this Board during the year 1895, except in so far as certain sections of that act were changed by an act passed by the Legislature of 1895, being chapter 496 of the Acts of that year.

At the time of the submission of the last report, the work of this commission was being conducted under the following heads : —

First. — The general direction and supervision of the large corps of inspectors of animals and provisions appointed by the cities and towns under the provisions of that act.

Second. — The examination of all reported cases of animals suspected of being afflicted with the contagious diseases enumerated under that law, other than tuberculosis.

Third. — The examination of neat stock for the detection of the presence of tuberculosis, the work in tuberculosis being the main work of the commission. This division of the work was being conducted in four different ways : —

1. The examination of all cases quarantined by local inspectors, suspected of being tuberculous, reports of which were received by the Board.

2. The examination of animals coming into the markets of Brighton, Watertown and Somerville for sale.

3. The examination of animals coming from without the State, upon special permit.

4. The systematic examination of all animals within localities specially designated and quarantined by the Board for that purpose.

At the time of the making of the report of last year, the Board was making all examinations of neat stock for the presence of tuberculosis with the aid of the diagnostic agent known as tuberculin, this work having been begun on Oct. 4, 1894, as stated in the report of that year.

INSPECTORS.

Under the provisions of sections 1 and 2 of the law of 1894, the cities and towns of the Commonwealth are obliged to appoint annually, in the month of March, one or more persons to be inspectors of animals and provisions. These inspectors have general supervision of the matter of the inspection of domestic animals within the limits of their cities or towns, and are under the supervision of the Board of Cattle Commissioners.

The law further provides that each city and town shall send to the Board of Cattle Commissioners, on or before the first day of April, a true and correct list of the duly appointed and qualified inspectors of animals and provisions, which notice shall give the name and address of each such inspector, and his usual business occupation, as far as the same is known. Under this provision three hundred and fifty-three, or all, of the cities and towns have appointed four hundred and fifty-eight inspectors, whose business occupations, so far as they are given, are as follows:—

Farmers,	241	Cattle dealers,	4
Veterinary surgeons, . .	47	Health officers,	4
Butchers,	7	Provision dealers,	5
Grocers,	11	Painters,	5
Trader,	1	Cow doctor,	1
Chiefs of police,	2	Wood and coal dealers, . .	3
Blacksmith,	1	Meat peddler,	1
Retired sea captain, . .	1	Carpenters,	2
Market gardener, . . .	1	Electrician,	1
Street commissioner, . .	1	Lumber dealer,	1

Poultry raiser,	1	Coal dealer,	1
Shoe shop,	1	Retired railroad conductor, .	1
Town clerk,	1	Inspector,	1
Sealer of weights and measures,	1	Assessor,	1
Contractor,	1	Salesman,	1
Undertaker and barber, .	1	Cattle broker,	1
Expressman,	1	Auctioneers,	2
Milkman,	1	Clerk,	1
Tax collector,	1	Dealer in horses and car- riages,	1
Laborer,	1	Veterinary student, . . .	1
Axe maker,	1	Market man,	1
Superintendent town farm, .	1	Sole cutter,	1
Deputy sheriff,	1	Janitor,	1
Retired butcher,	1	Occupation not given, . .	86
Fish dealer,	1		
Sawyer,	1	Total,	458
Drivers of retail meat wagon,	2		

Under the law of 1894 the duties of these inspectors consisted in the examination, at the time of slaughter, of all neat stock slaughtered at slaughter houses licensed under the provisions of law; the regular inspection of all neat stock within the limits of their cities or towns, at such time as the Board of Cattle Commissioners should designate; and the further inspection from time to time of all animals suspected of having any of the contagious diseases named in the act.

Under the provisions of chapter 496 of the Acts of the year 1895, these duties were extended by requiring that these regular inspections should include the examination of all sheep and swine, as well as neat cattle, as was formerly provided. This law further required that the carcasses of all sheep and swine slaughtered at licensed slaughter houses should be subject to the same systematic examination formerly required in the case of neat cattle only.

In this connection the Board desires to state that, while it has made a widely extended and very thoroughly conducted examination of all reported cases of tuberculosis among sheep in this State, it has as yet been unable to demonstrate its presence among them.

While this has been true in Massachusetts, it is right to say, here, that authoritative reports of the discovery of tuberculosis in sheep have been made, from time to time, as follows:—

The records of the Copenhagen slaughter houses, for the years 1890 to 1893 inclusive, show that, out of 337,014 sheep, 1 was found showing evidence of tuberculosis. The records of the Berlin slaughter houses for 1892 and 1893 show that, out of 335,949 sheep slaughtered, 15 showed evidence of tuberculosis.

In the case of swine, the Board, some time prior to the passage of this law, issued instructions to inspectors to ascertain as far as possible to what extent tuberculosis existed among this class of animals in their districts. The inspectors were asked to make post-mortem examinations whenever the opportunity offered, and to report the results of those examinations to the Board. In accordance with this request, many communications were received stating that tuberculosis had been found, and many specimens were sent to the laboratory showing unmistakable lesions of the disorder as existing in the lungs, livers and entire lymphatic system of these animals.

While this state of affairs was well known to exist, the Board has always considered that the difficulties surrounding the examination of live swine, for determining the presence in them of tuberculosis, were so great as to amount to an impracticability, in the cases of the local inspectors; and it has never, therefore, issued instructions to those inspectors as to methods to be pursued in examining these animals for that disease. The Board has realized, also, that the danger of communication of the disease from swine to other animals and to man is very limited, because of the fact that, so far as man is concerned, the only product of these animals eaten is derived from the flesh, and that in all cases, except among a certain portion of our German population, this product is so thoroughly cooked before being eaten as to kill the germ of tuberculosis; and, further, in regard to the transmission of the disease from swine to other animals, that the way in which swine are kept is one that prevents, of itself, any great liability of the extension of the disease to cattle; and, above all, that the life of swine is so short that any danger which may exist in this direction is naturally reduced to a minimum.

Up to March of this year, the regulations issued by this Board to inspectors required them to make two regular inspections of neat cattle in each year; the first one to be made dur-

ing the month of March, or just before the animals are turned out to pasture, and the second one to be made in October, or as soon thereafter as the animals come in from pasture.

The returns coming from the inspectors under this order were so few and unsatisfactory that the commission felt that if a longer time were given a better result might be reached, and that, at any rate, if the required examination should be limited to one in each year, the expense to the cities and towns would be considerably reduced, while the results obtained would not be any less valuable; and accordingly, on March 25, 1895, the following general order was issued:—

COMMONWEALTH OF MASSACHUSETTS.

BOARD OF CATTLE COMMISSIONERS,
SECRETARY'S OFFICE, 52 VILLAGE STREET, BOSTON, March 25, 1895.

To Inspectors of Animals and Provisions.

GENTLEMEN:—You may possibly remember that when the regular examinations of herds of neat stock were first begun, under the direction of this Board, four such inspections were ordered to be made in each year.

Experience with this order very soon developed the fact that it would be impossible for the inspectors to properly and thoroughly make so many examinations within the given time; and an order dated September, 1893, was passed by this Board, directing that “hereafter inspectors be ordered to make two thorough examinations of cattle in each year.”

This same order was, in substance, repeated by the enlarged commission, who, in a circular letter communicated to all of the inspectors on July 19, 1894, issued an order directing that “hereafter inspectors be ordered to make two thorough examinations of cattle in each year: one during October, or as soon thereafter as animals come in from pasture; the other during March, or just before the animals are turned to pasture. Reports of the results of these examinations, upon the proper blanks, must reach this office on or before the fifteenth day of December and the fifteenth day of May in each year. That inspectors be also ordered and advised to make inspections of any herds or of any animals within their district whenever any emergency arises, or whenever in their judgment, because of numerous changes or otherwise, it is better for the service for them to do so.”

It is under this order that the work has been done during the past winter and up to this time.

Now, the further experience has developed the fact that two complete inspections cannot be accomplished by the inspectors through-

out the State within the given time, the inspection directed to be finished by the 15th of December not yet being completed. This Board is, therefore, of the opinion that the objects sought by the law will be more fully and properly reached by again decreasing the number of inspections to be made, thus allowing time for a more thorough and careful examination of the animals than is now possible in a great number of the towns and cities; that is to say, they feel that one thorough examination, made through each winter, *with a continued subsequent examination in special cases and under certain conditions*, will succeed in discovering a greater per cent. of the tuberculous animals than can be found in the two hurried examinations; therefore:—

At a meeting of the Board of Cattle Commissioners, held on the fifteenth day of March, 1895, it was *Voted*, That inspectors will hereafter make their examinations of neat stock in conformity with the following order:—

General Order No. 6.

Hereafter inspectors will make one thorough, regular examination of all neat stock in each year. This examination shall commence in October, or as soon thereafter as animals shall be in from pasture, and be continued with all proper dispatch until finished. Carefully made reports of the results of this examination, upon the proper blanks (Form No. 1), must reach this office on or before the first day of May in each year. Inspectors are also ordered to make further inspections of any herds or of any animals within their district whenever any emergency arises, or whenever in their judgment, *because of numerous changes or otherwise*, it is better for the service for them to do so.

FREDERICK H. OSGOOD, *Chairman*,

CHARLES P. LYMAN, *Secretary*,

MAURICE O'CONNELL,

LEANDER F. HERRICK,

CHARLES A. DENNEN,

Board of Cattle Commissioners.

Under the provisions of the law of 1894 it was made the duty of all inspectors to quarantine every domestic animal which the inspector had reason to believe was infected with a contagious disease, the animal to remain in quarantine until examined by this Board, and released or condemned, as the case might be. Early in April, the appropriation for the work of this commission having been practically exhausted, the following order was issued to inspectors upon April 9, relating to animals placed in quarantine:—

COMMONWEALTH OF MASSACHUSETTS.

BOARD OF CATTLE COMMISSIONERS,
SECRETARY'S OFFICE, 52 VILLAGE STREET, BOSTON, April 9, 1895.

To Inspectors of Animals and Provisions.

GENTLEMEN:—Inasmuch as the temporary appropriation made for the uses of this commission by the present Legislature is nearly exhausted, we cannot at present carry on the work of examining such neat stock as you may see fit to place in quarantine, and pay for it if found diseased, until further appropriation is made. You are therefore hereby notified that any neat stock that you have already quarantined, and which has not yet been condemned by the Board, or that you may hereafter quarantine as being in your opinion tuberculous, will have to so remain until such time as sufficient money is so appropriated. When such further appropriation is made, you will be promptly notified of the fact by us.

FREDERICK H. OSGOOD, *Chairman*,
CHARLES P. LYMAN, *Secretary*,
MAURICE O'CONNELL,
LEANDER F. HERRICK,
CHARLES A. DENNEN,
Board of Cattle Commissioners.

After issuing this order the Board ceased to make further examinations of animals placed in quarantine until after June 4, when a further appropriation was made.

Upon April 9, at the time this order was issued, nine animals were in quarantine. Upon June 4 there were in quarantine, awaiting examination, eighty-six animals. The cost of keeping these animals in quarantine from April 9 to June 4 fell entirely upon their owners, and was the occasion of a considerable amount of complaint and hardship. The commission, however, was unable to remedy this, because under the law it had no authority to pay the expense of maintaining such animals in quarantine until after they had been examined; and it had no authority to incur the expense attendant upon the making of these examinations.

The passage of the law of 1895, while not making material changes as to the general administration, did change, in certain details, a large number of sections of the law relating to the administration of the work of the commission, which involved an entire alteration of the system under which the work

was done. This required an entire remodelling of all general orders of the Board and of all the forms and blanks theretofore used, and it was not until late in July that this work was accomplished.

Upon July 22 the following instructions were issued to all inspectors of animals and provisions throughout the Commonwealth: —

COMMONWEALTH OF MASSACHUSETTS.

BOARD OF CATTLE COMMISSIONERS,
SECRETARY'S OFFICE, 52 VILLAGE STREET, BOSTON, July 22, 1895.

To Inspectors of Animals and Provisions.

We send you herewith pamphlet containing all the laws now in force relating to the suppression of contagious diseases among domestic animals, being the law of last year under which you have been operating, as affected by the legislation of 1895. The laws contained in this pamphlet, together with such regulations and instructions as you receive from time to time from this Board and from the board of health of your city or town, will constitute the basis of your work as inspectors in the future.

Your appointment will be made by the same authorities as last year, to wit, the mayor and aldermen of cities and the selectmen of towns. As soon as you have been appointed, it is your duty to take the oath to faithfully perform the duties of your office.

While you have been appointed by your city or town authorities, the Board of Cattle Commissioners has the power to remove you from your office whenever in the opinion of this Board you neglect or refuse to properly perform the duties of your office, and in such case a new appointment will be made from this office.

While the service of the inspectors during the past year has been a great improvement over the work of the previous year, it has not been uniformly satisfactory throughout the State, and you are directed throughout your city and town to conform to the law and the regulations and orders issued by this Board. We therefore request you to carefully study the law bearing upon the matter, and to strictly carry out the instructions contained in this circular and all future orders.

Inspectors in cities or towns affected by chapter 476 of 1895 will deal directly with the auditor's office at the State House, and not with this commission, in relation to the provisions of that law.

It is made your duty, by the provisions of sections 3 and 42, to obey, carry out and enforce all orders and regulations issued by the board of health of your city or town or by the Board of Cattle Com-

missioners or any of its members, in the discharge of its or their duties.

Your attention is specially called to section 4 of the law herewith, which is section 1 of chapter 496 of the laws of this year. This law extends your duties in relation to inspection beyond that of last year. Under the previous law it was your duty to make regular inspections of all neat cattle within the limits of your city or town. This duty still remains in force. You will make this inspection in accordance with General Order No. 6, issued by this Board, March 25, 1895, which is as follows:—

General Order No. 6.

Hereafter inspectors will make one thorough, regular examination of all neat stock in each year. This examination shall commence in October, or as soon thereafter as animals shall be in from pasture, and be continued with all proper dispatch until finished. Carefully made reports of the results of this examination, upon the proper blanks (Form No. 1), must reach this office on or before the first day of May in each year. Inspectors are also ordered to make further inspections of any herds or of any animals within their district whenever any emergency arises, or whenever in their judgment, *because of numerous changes or otherwise*, it is better for the service for them to do so.

The law further requires you to make regular and thorough inspections of sheep and swine, as well as neat cattle. You will make this inspection at the same time that you make the inspection of neat cattle, under General Order No. 6. The Board has no special instructions to give you in regard to the inspection of sheep. It has no knowledge that tuberculosis exists in sheep, nor can the Board point out to you any particular method which it desires to have you follow to assist you in detecting tuberculosis in swine when alive.

Under section 5 it is your duty to keep a complete record of all inspections made by you upon the stub accompanying form No. 1, '95. In making this record you will be careful to make it complete both in the stub and in the return of such inspection, which should be made regularly to this commission, upon the proper blank (No. 1, '95), being careful to state particularly as to each animal. A separate page of these returns should be mailed to this office, corresponding with each certificate of inspection which you deliver to the owner. There should be one of these certificates returned for each owner or herd. Under the provisions of section 6 it is made your duty to deliver to the owner, or person in charge, a certificate covering the animals inspected by you where you fail to find any contagious disease present. This certificate, under the present law, includes not only neat cattle but also sheep and swine. *You should impress upon*

the owners of such animals that this certificate is not a guaranty that these animals are free from disease, or that they will remain so in the future, but that it is simply a certificate based upon a physical examination made by you, showing that upon such examination you fail to detect the presence of any contagious disease. This certificate should be made upon form No. 2, '95, which will be furnished you by this office, and a careful record of the facts contained in such certificate should be entered in the stub thereof.

It is also provided under the law enacted this year (see section 4) that you shall inspect barns, stables and other premises where animals are kept, whenever directed so to do by this Board. Separate forms will be furnished you later, with instructions in relation to this inspection.

It is also your duty to quarantine any animal whenever you are directed so to do by the board of health of your city or town or by this Board or any of its members. All quarantines imposed by you must be upon the premises of the owner or of the person in whose charge the animal is found, unless you have specific directions to the contrary from this Board or from your board of health. In imposing these quarantines great care should be taken by you, because every such animal, when properly quarantined, is deemed to be diseased so long as the quarantine lasts, and severe penalties are imposed for the breaking of any such quarantine (see section 34). Forms for these quarantines will be furnished you by this Board, and we desire to call your especial attention to these and to the manner in which the quarantine should be imposed. When you find an animal which you suspect or believe is affected with any of the contagious diseases named in the act, you should first ascertain, if possible, the owner of the animal, and to this end you should make yourself familiar with the cattle and other animals within your city or town. If you are unable to find the true owner, you will quarantine the animal, and direct your order to the person whom you find to be in possession of the animal at the time, first ascertaining from him, as far as possible, his control over the animal. Having ascertained these facts, you will then proceed to impose the quarantine.

You will note that the book of quarantine blanks which is furnished you contains three different kinds of blanks, printed upon different colored paper, and you will find upon the inside cover of this book brief directions as to these blanks, and upon what animals they are to be used.

Whenever an animal which you desire to quarantine is a cow in milk which you suspect or have reason to believe is tuberculous, you will use the form printed upon pink-tinted paper (No. 3 a, '95), but this form should never be used upon any other animals. Under the

law now in force (section 27 of the pamphlet herewith) the Commonwealth will pay the actual expense of quarantine of all cows in milk which is incurred after the tenth day from the date when the quarantine is imposed, because in such case the owner is forbidden to use the milk, and therefore while the quarantine lasts he is subjected to a loss from his failure to market this product. In the case of dry cows, bulls, oxen and all other animals, except when your quarantine is imposed in pursuance of a direction from this Board, you will, in quarantining such animals, use the form printed on white paper (No. 3 b, '95). In this case the owner suffers no loss while the animal is in quarantine, because there is no immediate product which he is prevented from selling, and here the expense of the quarantine is borne by the owner, as heretofore.

Whenever you are directed to quarantine any animal by this Board or any of its members, either by general order or special directions, it is made your duty to quarantine such animal, irrespective of any judgment that you may have as to the existence of disease (see section 7). In such case you will use the form printed on blue paper (No. 3 c, '95), unless you receive specific directions to the contrary. The animals quarantined by order of the commission will usually be animals which have been brought from without the limits of the Commonwealth contrary to the quarantine regulations imposed by the commission, and, although such animals may be cows in milk, the owner is not forbidden to dispose of such milk, because the animal is not quarantined as actually suspicious of being tuberculous.

Your attention is specially called to General Order No. 9, issued by this Board July 8, 1895, relating to cattle brought into this Commonwealth. You will carefully note the contents of this circular, and see, so far as possible, that its terms are carried out within the limits of your city or town. If you have any reason to believe that any person proposes to bring any neat cattle into your city or town without obtaining a permit for the same, you will send to this office all the information that you can obtain bearing upon the matter. If you find that any cattle have been brought into your city or town contrary to the regulation, you will quarantine all of the same upon the premises of the owner or person in charge, using quarantine form No. 3 c, '95, printed on blue paper. In case the permit issued by this Board for entry of any such cattle within the limits of your city or town orders the owner or consignee to notify you upon the arrival of such animals, you will inspect all of the same as soon after their arrival as practicable. In such case your duty is simply to see that each animal is accompanied by a permit issued by this Board. If the permit is accompanied by a certificate of a veterinarian, which

in all cases must be attached to the permit of entry, you will examine the animal, and see whether it corresponds with the description contained in the permit and certificate. If you find that it so corresponds, you will detach the veterinarian's certificate from the permit and indorse upon the bottom of said certificate the date and place of release, which you will sign and deliver to the owner or consignee. *You will fill out the corresponding certificate upon the bottom of the permit and return the same immediately to this office.* If you find that such animal does not correspond with the description in the permit and certificate, or if the permit is not accompanied with a certificate, you will immediately quarantine said animal, using the form No. 3 c, '95, printed upon blue paper, and forward to this office at once the duplicate, together with the permit of entry.

You should make yourself thoroughly familiar with the orders of quarantine in each case, so as to follow them intelligently. All of the blanks contained in these orders of quarantine should be carefully filled out. See that the date corresponds with the day when the quarantine is actually made, and when the order of quarantine is delivered to the owner, or served as provided by law. *Always write in the name of your city or town and the name of the owner in full, writing in his given name, and not the initials, if you know it.*

You will name the place where the quarantine is imposed, and give a description of the premises which will be sufficient for identification. *You must quarantine only one animal on a single blank, and you should write upon the blank an accurate description of the animal, giving all her distinguishing marks, so that the animal can always be easily and surely identified by the description contained in your order of quarantine.* You will also fill out the stub for the original order of quarantine, seeing that this is also accurately and carefully done. The original order of quarantine is to be served as directed in section 8. *If the owner is known to you and can be found, you should always deliver the original order of quarantine to him in person.* If he cannot be found and you know his usual place of abode, you will leave it at such place, giving it, if possible, to his wife or some member of his family, and instruct him or her of the importance of the order, and his or her duty to see that the owner receives it. In such case you should afterwards ascertain from the owner whether he received the order of quarantine, and see that he is informed of it. If the owner cannot be found or his residence located, you will deliver the notice to the person in charge. In such case you will write in the name of the person in charge. This should not, if it can be avoided, be delivered to ordinary hired help or men of a similar character about the premises.

If you cannot find either the owner or anybody in charge, you will post the order of notice upon some conspicuous place upon the barn or building where the animal is quarantined. This should not be done, however, except where it is practically impossible to find the owner or person in charge. In delivering the original order of quarantine to the owner, you should call his attention to the importance of his observing the quarantine, and especially to the section of the law bearing upon the matter which is printed upon the back of the order of quarantine.

You will note that the orders of quarantine are printed in duplicate, the original and duplicate following each other in the book. *This duplicate should be filled out to exactly correspond with the original.* This duplicate is to be sent to the office of this Commission, 52 Village Street, Boston, and *must be sent at once upon imposing the quarantine* (see section 9). The duplicate contains a form of return of service upon the back, which it is your duty to carefully follow. Accurate instructions are given under the return, stating how you should fill out the same, and these must be strictly complied with. Be sure to fill out and sign this return on the back of duplicate before mailing it to this office. At the same time that you send this to the Board of Cattle Commissioners you should detach and deliver to the board of health of your city or town the notice of quarantine which is printed by the side of the duplicate order of quarantine. The same rules are to be followed as to all the several forms of quarantine, except that the blank spaces to be filled in on these quarantines differ slightly.

Besides the quarantine imposed by your orders, you may receive, from time to time, orders of quarantine issued by this Board, sent to you for service. In such case the order of quarantine will be filled out at this office. It will be simply your duty to serve the same. In doing this you will proceed in the same manner as in the case of quarantines imposed by you.

You have no power to remove any quarantine imposed by you except upon the written order of this Board, or one of its members, or of the board of health of your city or town. When you have forwarded notice to this Board and to the board of health of quarantines imposed by you, and have served the order upon the owner or person in charge, or posted the same as above directed, it will be your duty to refrain from giving any information regarding the matter to any person whatsoever. While it is your duty to obey all orders issued by the board of health of your city or town, such orders are superseded by orders issued by this Board, in so far as they refer to the same matter (see section 40).

Under section 10 you are authorized to inspect the carcasses of all slaughtered animals, meat and other food products therein designated. You will act entirely in conjunction with your board of health in this matter, except as to matters of animals and meat inspected for the purpose of detecting the presence of a contagious disease. Whenever, upon the inspection of any carcass, which, within the meaning of this act, is defined to be the dead body of an animal before any of the vitals or other portions of the body are removed, you find that any portion of the body or any of the organs therein contained are affected with tuberculosis or other contagious disease, you will condemn the whole of the carcass, see that it is properly buried or otherwise safely and effectually destroyed, and send a notice of the fact to this office (see section 11). If, however, at the time of seizure the owner of the property notifies you in writing that he desires to appeal to the board of health, you will immediately notify such board of the appeal, and will retain the custody of the carcass, meat, etc., until such appeal is decided, which decision will be final.

You are also authorized, under section 12, to inspect veal. As to this inspection you will also act entirely with your local board of health.

Power is given you, under section 13, to enter, for the purpose of making inspections, upon any premises or into any building where animals, carcasses, meat, etc., are kept, and any person who interferes with you or prevents you from making this entry or examining such animals, meats, etc., is subjected to a heavy penalty for so doing. If this right is denied you, or you are prevented or interfered with in the performance of your duties, you should first demand entrance to the premises, or the disclosure of the secreted animal or article, making such demand, if possible, in the presence of some third party as a witness. If such entrance is refused, you will immediately notify this office, stating all the facts and the names of the witnesses who are present. *Do not in any case use force.*

Your attention is further called to sections 17 to 22, inclusive, of the pamphlet herewith, which are sections 3 to 8, inclusive, of chapter 496 of the Acts of 1895, relating to the matter of the inspection of carcasses and slaughter houses. These sections are substantially the same as last year, except that they require the inspection of carcasses of sheep and swine as well as of neat stock. The requirements of these sections will form an important branch of your duties. You are urged to see that there are no infractions of this law; and whenever you have any knowledge that any person is carrying on an establishment for the slaughter of neat cattle, sheep or swine without obtaining a proper license, or that any person is

slaughtering upon his own premises any of such animals without inspection, contrary to the provisions of section 21, you will immediately notify this office and your board of health of the fact, giving details as fully as possible. Every licensed slaughter house is obliged to state the class of animals which it intends to slaughter, the days on which it is the intention to slaughter, either in its application or by a subsequent written notice, of which you are directed to keep yourself informed (see sections 18 and 19). The license which is issued to each such slaughter house will state all the kinds of animals which the licensee is authorized to slaughter, and you will see that no animals are slaughtered on such premises except those designated in the license. By section 20 it is made your duty to be present on the days of slaughter, and *inspect at the time of slaughter* all neat cattle, sheep or swine at such establishment. If there is more than one inspector in your city or town, it is the duty of your board of health to divide the duties between you as to the slaughter houses.

Your attention is especially called to the wording of this section, which requires you to inspect *at the time of slaughter*. This means that you must in all cases inspect the animal before any of the vitals have been removed; *and you will not permit the owner or persons slaughtering to remove any of the vitals and set them apart for your subsequent inspection*. Where practicable, arrangements may be made between you and the proprietors as to the time of day when it will be necessary for you to be present.

You will also inspect *at the time of slaughter*, as defined by section 21, neat cattle, sheep and swine slaughtered by persons not regularly engaged in the business, whenever you receive reasonable notice from them of their intention to slaughter. This section has been slightly changed by the act of this year, which permits the slaughter without such inspection of calves less than six months old. This section also permits the slaughter without inspection of animals which have received a certificate of health from an inspector within six months. You will see that all animals slaughtered not coming within these two exceptions are inspected by you.

You will keep careful record of all these inspections, and make proper return of the same to this office upon the prescribed form, No. 6, '95, which will be furnished you. You will note the directions at the bottom of this form, and see that the certificates are regularly forwarded, and that they fully cover all this class of work conducted by you. This commission will not deem that any inspector has properly performed his duties who fails to carefully and conscientiously attend to the slaughter-house inspection and rendering of returns.

Whenever you find the carcasses of any neat cattle, sheep or swine to be infected with tuberculosis or other infectious disease, you will proceed as directed in sections 10 and 11.

You will also note the provisions of section 22 as to penalties incurred by persons who fail to cause their animals to be properly inspected, or who deal in meats of animals not so properly inspected.

Your attention is further especially called to the provisions of sections 29, 30 and 35, and you will call the attention of all veterinarians within the limits of your city or town to the requirements of law contained in these sections.

You will note the provisions of sections 38, 39 and 40, relating to regulations issued by this Board, and you will be governed by the requirements in such regulations.

Under the provisions of section 45, this Board, or any of its members, are authorized to kill animals which they deem to be affected with a contagious disease, when they deem that the public good requires it. Animals will be killed upon written orders issued by this Board, or one of its members, which orders may be directed to some agent of this Board, or to you or such other person as may be therein designated. In case you are named therein, it is your duty to strictly obey all directions contained in such order, both in the killing and in the disposal made of the carcasses. You will see that all orders of this Board, or of your board of health, regarding the cleansing and disinfecting of premises are promptly and thoroughly carried out. Whenever you receive any such order to destroy any animal, you will kill it yourself, or cause it to be killed by some other person *in your presence*; and in such case you will return a proper certificate to this office that such animal has been properly killed and disposed of. The majority of such animals so ordered killed will be neat stock destroyed as tuberculous. If such order is directed to you, you will see that all the requirements of said order, and of the certificate of ownership and valuation of the animal accompanying the same, are fully complied with. Full directions as to the same will be sent you with the order of killing. In case such order of killing is directed to an agent of this Board or other person, it will be your duty to accompany such agent or person, pointing out the animal called for in the order, and otherwise assisting him in the performance of his duty.

No compensation is to be paid to any person for any animal killed, except in the case of cattle affected with tuberculosis, and then only when such animals have been killed by order of this commission or one of its members, and when same has been owned within the State six months continuously prior to the order of killing.

In cases where the carcasses of any animals are destroyed by your order or that of the board of health, upon inspection at the time of slaughter, no compensation is paid for the same.

In case you act as appraiser in determining the value of any neat stock destroyed as tuberculous, your attention is called to the provision relating to this matter contained in section 45, which is section 10 of chapter 496 of the Acts of 1895. The requirements of law of last year, which provided that the animal was to be valued at the time of slaughter, "for food or milk purposes, and without taking into consideration the existence of the disease," have been repealed, and the present law requires you to value the animal at its actual *value at the time of condemnation.*

If you have any reason to believe that any person whose cattle are killed as tuberculous has, prior thereto, by wilful act or neglect, contributed to the spread of tuberculosis, you will notify the commission of this fact, giving, so far as possible, your reasons for so believing.

Forms for records to be kept by you, and of returns to be made, will be furnished you from time to time. These forms will correspond in a general way to those required last year. You are hereby directed to immediately deliver to the board of health of your city or town books of record heretofore furnished, being forms Nos. 1 and 2, relating to inspections and returns, form No. 3 being blank forms of quarantine, and blanks of form No. 6, being returns of inspection of slaughtered animals; and upon the Board receiving notice from the board of health of the return of such forms, new books, containing the forms for this year, and new forms will be furnished you in place thereof; and you are hereby directed not to use any of the forms of last year after the issue of this order.

At the expiration of your term of office as inspector it is your duty to immediately surrender all your books and blanks to the board of health of your city or town, to be delivered by them to the new appointee.

You are directed to carefully examine the provisions of this law and of the records and forms furnished you, and see that you thoroughly understand the same. You will see that these records are all carefully and thoroughly kept; and they must be at all reasonable times open to the inspection of the board of health or any member of this commission.

FREDERICK H. OSGOOD, *Chairman,*
CHARLES P. LYMAN, *Secretary,*
MAURICE O'CONNELL,
LEANDER F. HERRICK,
CHARLES A. DENNEN,
Board of Cattle Commissioners.

As will be seen by reference to this order, special instructions were given to these agents in relation to the certificates of soundness required under section 2 of chapter 496 of the Acts of 1895. In view of the experience of this Board in making physical examinations and tuberculin tests, it was felt that the owners of all neat stock should be informed that the certificate which they received showed only that an inspector found no evidence of disease upon physical examination. Accordingly the certificates prescribed by the commission to be issued by these inspectors were in the following form:—

CERTIFICATE OF INSPECTION OF CATTLE, SHEEP AND SWINE.

(Section 2, chapter 496, Acts of 1895.)

To be given to the Owner or Person in Charge.

Town or city of Month, Day, 189 .

I hereby certify that I have this day examined the following animals, said to be owned by Mr. of Street, town or city of :—

Cows in milk, Bulls, Cows dry and not fatting,
Fattening, Young, Oxen, Sheep, Swine,

Upon a physical examination I find no evidence of tuberculosis or other contagious disease in any of said animals. *Inspector.*

This certificate is not based upon a tuberculin test.

Further special instructions were given to the inspectors in relation to the quarantine of tuberculous animals. Section 27 of the law of 1894 provided that:—

When any animals are quarantined, collected or isolated under the provisions of this act, upon the premises of the owner or person in possession thereof at the time such quarantine is imposed, the expense thereof shall be paid by such owner or person in possession thereof.

Under the provisions of this law the inspectors were furnished blank forms of quarantine with which all animals suspected of being infected with any contagious disease were quarantined.

Section 9 of the law of 1895 changed this law by providing that:—

Whenever specific animals are quarantined or isolated under the provisions of sections seven, twenty-six and forty-five of this act, more than ten days upon such premises, as suspected of being afflicted with a contagious disease, and the owner is forbidden to sell any of the product thereof for food . . . the expense of such quarantine shall be paid by the Commonwealth.


Inasmuch as neither the law nor the regulations issued by the commission forbid the sale of the product of any animal quarantined, except the milk from cows, it was necessary to prescribe the use of quarantine orders, relating to such animals, differing from those that were used in the case of all others. In consequence the following order of quarantine, relating to cows in milk suspected of being tuberculous, was prescribed by the commission :—

ORDER OF QUARANTINE.

(Section 7, chapter 491, Acts of 1894.)

Original.

(*To be delivered to owner or person in charge.*)

 To be used only for cows in milk suspected of being tuberculous.

Town or city of

189 .

To owner (or person in charge).

You are hereby notified that, by virtue of the powers and authority in me vested by law, I have caused to be isolated and placed in quarantine in upon your premises, to wit, the milch cow described as follows, under suspicion of having the disease known as tuberculous, a contagious disease under the law.

You and all other persons whom it may concern are hereby forbidden to remove the same from said place of quarantine for the purpose of slaughter or for any other purpose whatsoever, or otherwise to break said quarantine, until the further order of the local Board of Health, the Cattle Commission or some one of its members.

You are notified that until this quarantine is removed said cow is deemed to be diseased. You are warned of the danger of using the milk therefrom, and are forbidden to sell or otherwise dispose of it in any market.

The Commonwealth will pay the actual expense of this quarantine which may be incurred after the tenth day, upon your returning to the Board of Cattle Commissioners a satisfactory certificate of such expense.

Inspector.

Use a separate order for each animal.

In all other cases the following form was ordered to be used: —

ORDER OF QUARANTINE.

(Section 7, chapter 491, Acts of 1894.)

Original.

(To be delivered to owner or person in charge.)

To be used for all animals except cows in milk suspected as tuberculous.

Town or city of

189 .

To owner (or person in charge).

You are hereby notified that by virtue of the powers and authority in me vested by law, I have caused to be isolated and placed in quarantine in upon your premises, to wit, the following animal, under suspicion of having the disease known as , a contagious disease under the law.

You and all other persons whom it may concern are hereby forbidden to remove the same from the place of quarantine for the purpose of slaughter, or for any other purpose whatsoever, or otherwise to break said quarantine, until the further order of the local Board of Health, the Cattle Commission or one of its members.

You are notified that until this quarantine is removed said animal is deemed to be diseased.

Inspector.

Use a separate order for each animal.

In view of the fact that the regular spring inspection was not made during the past year, comparatively few milch cows were placed in quarantine. In all cases where milch cows have remained in quarantine more than ten days, the owner who desires to make any claim upon the Commonwealth for the expense of such quarantine is required to make oath and deliver to the commission a claim for expense, in the following form: —

CLAIM FOR EXPENSE OF QUARANTINE. .

(Section 9, chapter 496 of the Acts of 1895.)

To the Board of Cattle Commissioners, 52 Village Street, Boston.

City or town of

189 .

DEAR SIR:— I hereby claim from the Commonwealth of Massachusetts \$ as the expense of quarantine of a cow in milk for days, and in support of the same I make the following affidavit: —

I hereby certify that during the entire period of quarantine I was the owner or person in possession of the cow in milk described as follows:

; that said cow was duly quarantined upon the day of
189 , by , upon which day the proper order of quarantine
was duly delivered to me; that said cow remained in quarantine continuously thereafter until the day of ; that during all said time I did not remove said cow from quarantine or in any way break the same or disobey any order lawfully issued in regard to said animal or quarantine.

I further certify that I did not sell, dispose of or use for food the milk or any other product of said cow during all the time that said cow was in quarantine, and that since the day of 189 , *being the tenth day after the date when said cow was quarantined*, I actually expended in maintaining said cow in quarantine the sum of \$ as follows:—

I further certify that all said expenses were reasonable, and were necessary for the proper maintenance of said cow.

Witness,

Owner.

COMMONWEALTH OF MASSACHUSETTS.

ss.

City or town of

189 .

Then personally appeared the above-named to me personally known to be the person subscribing the same, and made oath that the foregoing statement by him subscribed is true, except as to such matters as are alleged on information and belief, and as to those, that he believes them to be true.

Justice of the Peace.

Seventeen claims have been received by this commission for the expense of quarantine under this section. In the majority of these the price charged was deemed reasonable, and has been approved by the commission. The remaining claims have been held for further investigation.

The commission would further state that in all other cases where animals have been placed in quarantine the length of time during which they have been held has been less than ten days.

The Board is now only beginning to be in receipt of returns of quarantine imposed, as the result of the annual examination; but between the fifteenth day of November and the fifteenth day of December 1,011 animals have been so quarantined, and, at the present writing, these quarantine orders are being received at an average rate of about sixty per day.

The receipt, at this time, of this very large number of notices of quarantine, together with the fact that the appropriation made for the work of the Board has been exhausted by payments made and obligations incurred, brought the commission face to face with a question of considerable economic importance, the proper solution of which is difficult. Inasmuch as the inspectors are public officers, charged with the duty, imposed by law, of making regular and thorough inspections of all neat cattle, sheep and swine found within the limits of their several cities and towns, the Board has no power to prevent these inspections, nor has it the power to forbid the quarantining of animals suspected of being diseased.

Further, section 37 of chapter 16 of the Public Statutes provides that:—

No public officer shall make purchases or incur liabilities in the name of the Commonwealth for a larger amount than that which has been appropriated by law for the service or object for which such purchases have been made or liabilities incurred; and the Commonwealth shall be subject to no responsibility for the acts of its servants and officers beyond the several amounts duly appropriated by law.

Finally, under the provisions of the law relating to quarantine the statute is imperative that the Commonwealth shall pay to the owners the entire cost of maintaining quarantined animals after the lapse of the first ten days.

In the face of this dilemma the commission have considered it more desirable to incur the expense of making the examinations as soon as possible after receipt of the notice, freeing such animals as were found not to be tuberculous, and keeping the others in quarantine until it becomes possible, by means of a further appropriation, to compensate the owners for their losses and destroy the animals.

Inasmuch as the order of this Board, issued March 25, did not require that a regular inspection should be made until October, 1895, or later, nor that the returns should be completed before the first day of May, 1896, the commission is not in possession of complete returns showing the results of a thorough inspection of neat cattle, sheep and swine through-

out the State; but, up to the first day of December, returns had been received from sixty-nine towns, showing the following results: total number of herds examined, 4,769; total number of cattle examined, 26,756; total number of sheep examined, 5,412; total number of swine examined, 13,061; making the total number of all animals so far examined 45,229, with 285 cities and towns yet to be heard from.

SLAUGHTER-HOUSE INSPECTION.

Under the law of 1894 it was provided, for the first time, that the proprietors of slaughter houses and similar establishments engaged in the slaughter of cattle should take out a license to conduct such business. The result of this division of the work, to Dec. 15, 1894, will be found upon pages 16-18 of the report of this Board for the year 1894.

As will be seen, this law required licenses to be taken out only in the case of persons engaged in the slaughter of cattle. Under an amendment contained in section 3 of the law of 1895, the act of 1894 was extended to include:—

The proprietor or proprietors of every slaughter house, canning, salting, smoking or rendering establishment, and of every establishment used for the manufacture of sausages or chopped meat of any kind, engaged in the slaughter of neat cattle, sheep or swine, the carcass or any of the meat or product of which is to be sold or used for food . . .

By the provisions of section 1 of the same law it was further provided:—

Nothing in this act shall apply to the inspection of sheep or swine slaughtered in wholesale slaughtering establishments, or to the obtaining of a license for the slaughtering of such sheep or swine.

It will be understood, therefore, that as a result of the amendment of 1895 all establishments theretofore required to take out licenses were still subject to the same law, and the law was extended to include those slaughtering sheep and swine, unless such person was the proprietor of a wholesale slaughtering establishment.

Upon July 1, 1895, this Board issued a general order to

mayors and aldermen of cities and selectmen of towns, containing the following instructions relative to the issuing of licenses :—

Every such proprietor engaged in the business of slaughtering neat cattle must take out such license before he is authorized to do business. Wholesale slaughtering establishments are not required to take out a license for the slaughtering of sheep or swine, nor are the inspectors required to be present at such establishments to inspect at the time of slaughter the carcasses of sheep or swine (section 1, chapter 496 of the Acts of the year 1895). If, however, such proprietors are also engaged in the slaughter of neat cattle, they must take out a license to slaughter such animals as heretofore. In the opinion of this Board, a wholesale slaughtering establishment within the meaning of this act is an establishment that markets its product to the jobbing trade alone, and disposes of no single carcass or portions thereof. In all such establishments inspections are now being made by agents appointed under the laws of the United States, therefore an establishment where no such inspection under the laws of the United States is being conducted is not deemed to be a wholesale establishment by this Board.

Soon after the law of 1894 came into operation, it was found to be defective, to a certain extent, in that it failed to provide for the making of returns to this commission of the number of the several establishments so licensed to carry on this business. Accordingly the law was amended by section 4 of the law of 1895, by providing that :—

The board or officer of every city or town authorized to issue said license shall on or before the first day of June in each year send to the Board of Cattle Commissioners a copy of every application made to them under section seventeen of this act, and shall state the doings of said board or officer upon said application ; and shall further send to the Board of Cattle Commissioners the names and addresses of all persons required to make application under section seventeen, who were engaged in such business on the last day of the previous April, and who have failed to make application as provided in said section.

Under the order issued by this Board on July 1, to cities and towns, the Board gave the following directions :—

Forms of applications and licenses to slaughter will be furnished you upon application to this Board. Please notify all persons engaged in the business of slaughtering neat cattle, sheep or swine within the limits of your city or town of the provisions of this act, and request them, if they desire to conduct such business further, to make proper application in accordance with the provisions of section 3 of said chapter 496, which should be strictly complied with. In case the proprietor of any such establishment has already obtained a license to slaughter cattle for the year ending the 30th of April, 1896, and does not desire to slaughter either sheep or swine, no new application is necessary. If such person desires or intends to slaughter sheep or swine in addition, it will be necessary to make application for and obtain a new license.

Your attention is called to section 4 of said chapter 496, in relation to the issuing of licenses, which should be strictly complied with, and records should in all cases be kept by the proper board, showing the action taken by your city or town upon each application.

Your attention is specially called to the latter portion of the provisions of this section, which requires the board or officer having the matter of the issuing of such licenses in charge to send to the Board of Cattle Commissioners a copy of every application made to carry on such business of slaughtering, together with a copy of the records of the city or town, showing the action of such board or officer upon each such application. The commission deems it very important that this provision be complied with, in order that accurate records may be kept of the location of all such establishments and of the names of all persons engaged in such business.

Inasmuch as the law this year allows thirty days within which licenses must be taken out, which would expire on the fifth day of July, the Board desires you to send to it before the first day of August a copy of all such applications which have been or may be made to conduct the business of slaughtering for the year ending April 30, 1896, and of the records of the doings of your city or town officials upon the same, and also a list giving the names and addresses of all persons within the limits of your city or town, required under this section to take out a license, who were engaged in such business on the thirtieth day of April, 1895, and who have failed to make application for a license to carry on the business.

The Board earnestly requests that you will co-operate with it in this important work, and will promptly notify it of any breaches of this law, not only on the part of persons slaughtering animals, but on the part of the inspectors in failing to attend properly to the matter of inspection.

Under this provision of the law and in response to this order the Board has received returns from fifty-nine cities and towns. New forms for licenses under the provisions of the act of last year were prepared by the Board, and furnished, as heretofore, to such towns as desired them, free of charge. The form of these licenses varied but slightly from the form used and printed in the report of last year (see page 168, report of 1894).

The duty of inspecting animals at the time of slaughter in these establishments is, in but comparatively few instances, imposed upon those who are also inspectors of herds, so that a very material portion of the work of those appointed to these positions consists in the inspection at the time of slaughter of all neat cattle, sheep and swine slaughtered at these establishments. Full directions in relation to this work were given by the commission to such inspectors in the letter of instructions, already printed on pages 10-19 of this report.

Returns of this inspection of slaughter houses are required to be made by each inspector once in each month; and these returns received since the time at which the law was changed, in June last, up to the fifteenth day of December, show the following results : —

Number of cattle inspected at licensed slaughter houses at time of slaughter,	18,738
Number of sheep inspected at licensed slaughter houses at time of slaughter,	36,720
Number of swine inspected at licensed slaughter houses at time of slaughter,	2,779

It was further provided, by section 21 of the law of 1894, that wherever any person slaughtered any of his own cattle upon his own premises, other than a slaughter house, such person shall cause the carcass to be inspected at the time of slaughter, “unless such animal has been duly inspected under the provisions of this act within six months prior to such slaughter, and a certificate of health has been delivered to the owner or person in charge thereof.” This law was amended to read, “unless said animal is less than six months old, or has been duly inspected under the provisions of this act within six months prior to such slaughter, and a certificate of

health has been delivered to the owner or person in charge thereof."

Under the provisions of this law, therefore, all animals slaughtered by owners, other than proprietors of licensed slaughter houses, are required to be inspected, unless they come within the exception above stated. The returns from this inspection are : —

Number of cattle inspected at time of slaughter, under section 21, .	508
Number of sheep inspected at time of slaughter, under section 21, .	212
Number of swine inspected at time of slaughter, under section 21, .	1,034
Total number of animals inspected at time of slaughter, including those inspected at licensed slaughter houses and also under section 21,	59,991

These returns are meagre, and, therefore, as indicating a non-compliance with this important although rather new provision of our laws, unsatisfactory. It is hoped, however, that in the near future, as our city and town officers become more familiar with the work required of them under it, much improvement will be made.

The following returns of diseased carcasses, found by inspectors, embrace their examination both at slaughter houses and upon the premises of owners (under section 21) : —

Cattle destroyed as tuberculous,	192
Sheep destroyed as tuberculous,	8
Swine destroyed as tuberculous,	97
Percentage of cattle found infected,	1.00
Percentage of sheep found infected,02
Percentage of swine found infected,	2.50

It will be noted that these returns show that the carcasses of eight sheep were destroyed as tuberculous. It should be understood that these condemnations were made, so far as this Board is informed, by the inspectors, and is a statement of their opinions, unsupported by any laboratory investigation.

GLANDERS.

During the past year, as heretofore, the entire time of Commissioner O'Connell has been substantially given to answering

in person the numerous calls in relation to suspected cases of glanders and farcy, received from local inspectors, health authorities and various other persons.

During the year the Board has received notification of two hundred and fifty of such suspected cases; of these, two hundred and six have been condemned and killed and forty-four have been released. All cases of this nature that have been received have been attended to, and in every case that has been destroyed post-mortem examination has shown the disease.

The condemned animals were found in the following-named cities and towns. The asterisk shows towns where same disease was found in 1894.

Abington,	* Franklin,	Quincy,
* Amesbury,	* Gardner,	* Somerville,
Amherst,	* Grafton,	Southbridge,
* Arlington,	Groveland,	Southborough,
Attleborough,	* Harvard,	* Springfield,
Ashburnham,	* Haverhill,	* Stoughton,
* Boston,	* Holyoke,	Stockbridge,
Braintree,	* Hopkinton,	Swansea,
* Brockton,	* Lawrence,	Shelburne Falls,
* Cambridge,	Lee,	* Taunton,
* Canton,	* Lexington,	Ware,
Charlestown,	Lowell,	* Westport,
* Chelmsford,	* Lynn,	Wayland,
Chesterfield,	* Malden,	Waltham,
* Chicopee,	Mattapoisett,	Wellesley,
Clinton,	* Millbury,	Webster,
Dedham,	* Needham,	* Whitman,
* Everett,	* Newton,	West Springfield,
East Longmeadow,	* Northampton,	* Worcester.
Fall River,	North Andover,	
Fitchburg,	Pittsfield,	

A comparison of these statistics with those given in this same connection in the report for 1894 shows that in the same number of towns there have been twenty more cases reported and forty-six more animals destroyed this year than last; and

that, of the sixty-one towns reporting, thirty-one were among those reporting last year.

Three quite pronounced outbreaks of the disease have been encountered, one in Worcester, one in Fall River and one in Lynn; but it is now believed that these outbreaks have been successfully suppressed.

The commission has good reason for believing that much of the difficulty surrounding any attempt at the suppression of glanders and farcy is in the failure upon the part of some of those who make a business of treating sick horses, and who call themselves veterinarians, to report the cases that come to their knowledge. It is certainly true that practically no information of this kind is received from this source by the commission. Veterinary practitioners should be more anxious and more able than any other class of our community to be active in helping to suppress a disease which is so destructive to horses and so dangerous to mankind.

Otherwise, the commission has had the hearty co-operation of the community, the local boards of health and the police departments of the several cities and towns.

It is possible that, if it is more widely understood that sections 29 and 35 of chapter 491 of the Acts of 1894 refer to glanders and farcy as well as to some other contagious diseases of animals, the law will be more fully complied with. The sections are as follows:—

Section 29 of the Acts of 1894 provides that:—

Every person who has knowledge of or good reason to suspect the existence of any contagious disease among any species of domestic animals within the limits of this Commonwealth, or that any domestic animal is affected with any such contagious disease, whether such knowledge is obtained by personal examination or otherwise, shall immediately give written notice thereof to the board of health of the city or town where such diseased animal or animals are kept, and for failure so to do shall be punished by a fine not exceeding five hundred dollars or by imprisonment in jail not exceeding one year.

Section 35 of this same act provides:—

Every person who kills or causes to be killed, with the consent of the owner or person in possession thereof, any animal under suspicion

that the same is affected with or has been exposed to a contagious disease, and who, upon the inspection of the carcass thereof, finds or is of the opinion that the same is affected with a contagious disease, shall notify such owner or person in possession thereof of the existence of such disease, and shall also immediately notify the Board of Cattle Commissioners of the same, and of the place where the animal was found, the name of the owner or owners or person or persons in possession thereof, and of the disposal made of such carcass. Any person violating the provisions of this section shall be subject to the same penalties as are provided in section fifteen of this act.

In the opinion of the commission, one very potent source of the dissemination of glanders and farcy is in the public drinking troughs and watering tubs.

In Worcester County, for instance, there are a great number of itinerant venders of wares, who buy worn-out and sick horses at nominal prices, a large number of them being purchased outside the limits of this Commonwealth, where they are not subject to strict inspection laws. These animals are lodged in old barns and small buildings during the night, and in the daytime are hitched to the carts from which wares are sold, and driven throughout the surrounding country.

The commission has found cases of glanders in Fitchburg, Clinton, Ashburnham, Westport and Newton Lower Falls, which were directly traceable to the horses of itinerant venders, the disease having undoubtedly been conveyed through the medium of the public watering troughs.

The commission has no practical way of coping with this disease other than by promptly examining all suspected cases, and destroying those that prove to be diseased.

Notwithstanding the fact that many practitioners use and advise the use of mallein as a diagnostic agent in the presence of suspected glanders, this commission has continued to rely upon a carefully made physical examination in all of the cases. It has, however, used mallein to verify these diagnoses in twenty-seven instances; or perhaps the situation would be more accurately stated by saying that in twenty-seven instances of undoubted glanders the mallein was used and its performance carefully watched.

HOG CHOLERA.

There is but little to say on this subject. Sixty-five outbreaks have been reported during the year. This is a matter which, as a whole, can be very well treated by the owners of animals, and accordingly the Board issued to such owners the following letter of instructions : —

52 VILLAGE STREET, BOSTON, Oct. 14, 1895.

DEAR SIR : — In treatment of outbreaks of hog cholera, I am instructed by the Board of Cattle Commissioners to direct as follows : Make a thorough separation of the well from the sick animals ; let the well ones be examined frequently, and as fast as new disease is found, put the animal among those that have been set off as sick ; quarantine the whole herd, allowing no animals to be sold from it or none to be added to it until all signs of the disease have disappeared from among them. Place in the food a solution of carbolic acid, — five drops to one hundred pounds live weight of the animal.

Yours truly,

F. H. OSGOOD, *Chairman*.

RABIES.

Strictly speaking, this Board has received no notice of the existence of rabies in the State during the past year, nor have any of its members had any reason to suppose that there had been any outbreak of the sort until on or about the 10th of December, when a statement published in one of the Boston daily papers led to an inquiry and the following correspondence : —

[COPY.]

CITY HALL, WEST NEWTON, Dec. 11, 1895.

Dr. ROBERT A. REID, *Newton, Mass.*

DEAR SIR : — It appears that by the law of 1894, chapter 491, section 37, “rabies” was made a contagious disease, and the execution of the law in regard to same is with the Board of Cattle Commissioners. Will you be so kind as to write a statement of the case to Dr. Chas. P. Lyman, No. 52 Village Street, Boston, Mass., giving such facts as are in your possession, and the Board of which he is secretary will take immediate action.

Very truly yours,

(Signed)

I. F. KINGSBURY, *City Clerk*.

[COPY.]

NEWTON, MASS., Dec. 12, 1895.

Dr CHARLES P. LYMAN, *Boston, Mass.*

DEAR SIR:—The Board of Aldermen of Newton, at special session, ordered all dogs in Wards 1 and 7, east of Laundry Brook, muzzled for four months. Enclosed letter from city clerk explains itself, and why I address you. It is probable that you have seen something of the case in the daily papers, *e. g.*, the “Herald” of Tuesday. Until the 22d ult. the dog, which was but thirteen months old, was just an awkward, good-natured puppy. On the 22d he was very much excited and restless, and showed disposition to snap, and on the 23d bit the seven persons alluded to, including boy on whose bed he had slept each night, and servant girl who fed and petted him. He also fought with every dog he could find, without regard to size. He was taken to the dog and cat home at Brighton, but man in charge gruffly refused to admit him, although the children told him something was wrong with the dog.

He fought with many dogs going to and from that place, wounding some severely. He disappeared at 5 P.M., and was killed at 5 A.M. next morning, at West Roxbury, nine miles distant. What course did he pursue in reaching that place, and how many dogs did he bite? He savagely attacked and bit the man who killed him. Identification was positive a week later, and the autopsy at Boston Veterinary College showed stomach full of stones, sticks, straw, hair and manure. His teeth were all broken. Dr. Ernst has inoculated rabbit, and also one has been inoculated at Pasteur Institute, New York, where children, two of them being my own, are under anti-rabic treatment.

Since local ordinance was passed, it occurred to me that territory covered is not sufficient, as he visited home of John Campbell on Chapel Street, this city, on the 22d, which is quite a little west of Laundry Brook, but was not admitted, as he was then all dirty and bleeding. Please act promptly and vigorously, as Thursday will be twenty days since the 22d. On October 18 a small black dog, who acted strangely and had run away from home, ran up the street adjoining the home of the dog above mentioned, and ran across a wide lawn and attacked a child. He was beaten off by a coachman, who was bitten. He snapped at several persons, and was killed by the police. Did he bite this dog, and where else did he go, or what other dogs did he bite?

Newton is greatly excited, and will welcome vigorous and far-reaching measures. Dr. Ernst says, even if rabbit does not develop rabies, it will not disprove that dog having rabies, as the dog had

been dead and buried for ten days. Owner of dog recalls that about October 18 he came home with nose bleeding from bite.

Yours very truly, (Signed) ROBERT A. REID.

[COPY.]

NEWTON, MASS., Dec. 12, 1895.

A collie dog, owned by Mrs. Alice Kenway of Fairmount Avenue, Newton, Mass., disappeared from home Nov. 23, 1895, after biting some six people and several dogs on that and the preceding day. Said dog was killed in West Roxbury, Nov. 24, 1895, after biting a man there.

The undersigned state that to the best of their knowledge said dog was truly rabid, and wish to call the attention of the Massachusetts Cattle Commission to the same.

(Signed) KENELM WINSLOW.
ROBERT A. REID.

[COPY.]

NEWTON, MASS., Dec. 21, 1895.

DEAR DR. LYMAN:—Dr. Ernst has corroborated our diagnosis of rabies in the case of the Kenway dog, by giving the disease to rabbit. Dr. Ernst reports that the inoculated rabbit died of rabies some days since.

Yours very truly, (Signed) K. WINSLOW.

[COPY.]

BOSTON, MASS., Dec. 23, 1895.

Dr. LYMAN, *Board of Cattle Commissioners.*

DEAR SIR:—I am informed that your Board has jurisdiction over dogs, as well as cattle. On November 23 a rabid dog in Newton, where I live, which has been proved to have been *surely rabid*, bit my son, as well as other children. The dog was killed the next morning in West Roxbury. The city of Newton has ordered dogs muzzled in a part of the city, and it should be also done in Newton Centre as well, as there is strong probability that the dog may have travelled through that section as well as by another route. I have noticed that many of the animals are not muzzled properly, having simply a strap buckled over head and face, which does not prevent them from using their jaws, and have just called the authorities' attention to it.

In my opinion, the fact that a rabid dog roamed the streets for nearly two days makes it a *very serious* matter, as cattle, horses, cats, dogs and other animals may have been bitten. I think that the *most stringent* measures are necessary for the next few months, to protect the community.

Yours truly, (Signed) BRUCE R. WARE.

On December 20 further indirect information was received that a rabid dog had run amuck and been shot at Millbury. The inspector for that town was requested to obtain the carcass of the suspected dog and send it to Village Street. This he did, and immediately upon its receipt the proper steps were begun for the purpose of determining whether or not this animal was actually rabid. The fact cannot be ascertained until after some time from the commencement of the inquiry. Nothing more has been heard concerning this animal.

On December 30 one of the Boston evening papers printed a communication, dated at Watertown on the 30th, stating that a suspected mad dog had been killed in that town, after coming there from Crescent Beach, Revere, where he had bitten a few dogs and several children. In this instance the inspector for Watertown was directed to get possession of the carcass of the suspected dog and send it to the laboratory at once, also to ascertain all that was possible in relation to the animal and his actions.

In answer to this the following correspondence has been received:—

[COPY.]

WALTHAM, MASS., Jan. 2, 1896.

DEAR DR. LYMAN:—I have investigated the mad dog case, as you requested. I found he had been buried in a lot off Howard Street, Watertown. I sent my man down this morning and brought the dog to Waltham, and have shipped him by National express to No. 52 Village Street, at 10.19. I found, on inquiry at the police station, that he had bitten one or more dogs in the town, and ordered them quarantined until the case had been investigated. I asked the chief of police to find out all he could in regard to the case. I enclose copy of letter from the owner of the dog at Revere; will report later if I find anything more pertaining to the case.

Yours truly,

(Signed) W. E. PETERSON, *Veterinary Surgeon.*

[COPY.]

REVERE, MASS.

The Chief of Police, Watertown, Mass.

DEAR SIR:—I was very glad to hear that you had succeeded in shooting my dog. I sincerely hope nothing serious will result from his ravages. I tried to poison him Saturday night, but failed, and

on Sunday morning he escaped from the house, so I at once notified the police, and they, with several citizens of Revere, were on the watch for him all day Sunday, but without success. Shall be greatly obliged if you will attach enclosed tag to his collar, and forward by express.

Yours respectfully,

(Signed)

T. B. MIDDLEBROOKE.

It is well known that generally newspaper reports of mad dog cases are entirely without foundation in fact; that dogs generally killed in the streets are very much more likely to have been suffering from some form of disease other than rabies, or else are the victims of some great mental disturbance. When, however, an actual case of rabies has been discovered, as in the present instance of the Newton dog, all such reports, however vague, coming from even the remote neighborhood of the outbreak, should at once be made the subject of careful inquiry; and, if deemed necessary for the protection of the public health, prompt and decided action on the part of all those whose duty charges them in this direction. This Board is willing to act in this or in any other matter, properly coming to it, with decision and firmness; but it is not ready to undertake measures for the suppression of rabies until it has assured itself, by a knowledge of more than one undeniable case, that that dread disease has really appeared in an epizootic form.

The action of this commission in this direction could be very much more prompt, and so more valuable, if those persons having a knowledge or suspicion of the appearance of this disease would communicate them at once to this Board, and not make it necessary for it to obtain its information as may happen, and at a late day. It does not seem to be at all well understood that rabies was made a contagious disease under chapter 491 of the Acts of 1894, and that under section 29 of that law it is incumbent upon "every person" who has a knowledge or suspicion of the existence of this disease to "immediately give written notice thereof to the board of health of the city or town where such animal or animals are kept."

Dogs that are supposed to be rabid should, if possible, be safely shut up until the fact can be fully ascertained. The

commission will at once visit and examine any such animal of which it receives notice. If the animal has already escaped from his home, and must be killed, his body should at once be boxed and sent to the laboratory of the Board at 52 Village Street, that a proper autopsy and pathological examination may be made, which will set aside all doubt in the matter. Secure muzzling of dogs within the infected area is the only possible means of limiting the spread of the disease after it obtains foothold.

As has been said, the greater portion of the work of the commission has been in connection with tuberculosis. For convenience, as heretofore, the report on this work will be divided into several headings, embracing the special classes under which the work was conducted.

EXAMINATION OF CATTLE COMING TO BRIGHTON, WATERTOWN AND SOMERVILLE, AND CATTLE COMING FROM WITHOUT THE STATE.

Upon Nov. 21, 1894, the Board began the systematic examination, with tuberculin, of all animals, whether coming from within or without the State, arriving at the markets of Brighton, Watertown or Somerville, for sale. This work was continued weekly from that date up to the 30th of April, 1895. Upon page 26 of the report of this Board for the year 1894 will be found a table showing the results of this work up to and including the week of Dec. 26, 1894, embracing the first six weeks of the work at those stations. The further result of this work up to and including the time when the work was discontinued is shown in the following table:—

	Number Examined.	Number Condemned.	Number Tuberculous.	Number not Diseased.	Number Held.
Jan. 8, . . .	307	29	26	3	8
Jan. 15, . . .	273	23	22	1	11
Jan. 22, . . .	194	21	19	2	13
Jan. 29, . . .	337	16	16	—	21
Feb. 5, . . .	248	14	12	2	8
Feb. 12, . . .	294	—	—	—	24
Feb. 19, . . .	302	10	4	6	21
Feb. 26, . . .	392	16	16	—	22
March 5, . . .	447	11	9	2	10
March 12, . . .	353	—	—	—	18
March 19, . . .	344	20	16	4	12
March 26, . . .	371	16	13	3	33
April 2, . . .	395	5	4	1	22
April 9, . . .	404	7	5	2	19
April 16, . . .	302	6	—	—	11
April 23, . . .	142	1	—	—	7
April 30, . . .	744	18	—	—	21

During the weeks beginning February 12, March 12, April 16, 23 and 30, no animals were killed. In the last three weeks no animals were killed because of failure of appropriation.

An examination of the above table shows that during this period 5,849 animals were examined. Of the 213 which were condemned, only 188 were killed prior to April 30. Of these, 162 clearly demonstrated the presence of the disease and 26 were found free from disease. The 18 which were condemned and the 21 which were held for retest on April 30 were all held in quarantine until June 5, at which time 3 had died. Of the remaining 36, 30 were found diseased on post-mortem examination and 6 were released. As will be seen also, the average number of animals examined in each week was 344.

The results of the work, as the table shows, varied greatly from week to week; in some weeks practically no condemned animals were killed in which the disease was not plainly demonstrated by the post-mortem examination; at other times, as on February 19, a large proportion of those condemned and killed were pronounced by the post-mortem examination to be free from tuberculosis.

As stated in our previous report, under the system estab-

lished by the commission at these markets, animals where tuberculosis was not detected with tuberculin were branded before being freed from quarantine. After the animals were so branded they passed out of the control of the Board, and the commission had no means of following them, to determine whether or not they subsequently showed any evidence of tuberculosis, and, if so, whether the presence of such disease, afterwards found, indicated that the animals were affected at the time when the brand was affixed. The commission has had within its observation very few instances of such animals being found affected with tuberculosis upon subsequent slaughter.

The slaughter houses at Brighton are under the supervision and control of the health department of the city of Boston, and on page 114 of the report of that department for the year 1894 (City Document, No. 13) will be found the following:—

The following table shows the number of animals killed, which failed to react to the tuberculin test, and had been pronounced free from tuberculosis, the Commonwealth brand having been placed upon the right hip:—

ANIMALS.	Number Killed.	Number Tuberculous.	Percentage Tuberculous.
Cows,	62	4	—
Steers,	1	—	—
Total,	63	4	6.34

In regard to this work, it should be remembered that the undertaking was experimental, for the purpose of determining whether the tuberculin test could be successfully applied to animals coming to these markets, under the conditions which existed there, without serious inconvenience to the dealers, in a way that would assure purchasers that the cattle there dealt in were free from tuberculosis; and this commission stated, in its report for the year 1894, on page 23, that:—

With the adoption of the tuberculin test, the Board determined to inaugurate, if possible, some practical method whereby all the cattle

coming to these markets should be subjected to the tuberculin test before being offered for sale. Whether or not, in view of the circumstances under which these animals have to be examined, such a result can be obtained by the tuberculin test, still remains to be proved.

This experiment was continued under substantially the same conditions until April 30, 1895.

The commission, after a most extended work with tuberculin, is satisfied that the unsatisfactory results which were obtained at these markets were not due to the inability of the agent tuberculin to disclose the presence of the disease when applied under proper conditions, but were due to other causes, of which the commission has made a most careful study. Upon pages 22 and 26 of our report for last year will be found the views of the commission as to the difficulty of making successful tests at these markets, and the reasons for it.

In continuing this work, the commission made every reasonable endeavor to reduce to a minimum, or eliminate, the unfavorable conditions under which the work was obliged to be conducted, while at the same time endeavoring not to interfere any more than was absolutely necessary with the interests of those selling and buying cattle at these markets.

Long familiarity with the work of testing cattle with tuberculin has convinced the commission that it is an extremely delicate test, and that satisfactory results cannot be uniformly obtained unless the animals to be tested are in substantially a normal condition; which means that they must be free from local causes of excitement, must be in surroundings which are reasonably familiar to them, must have been regularly fed and watered prior to the time of the test, and that immediately prior thereto they should not have been subjected to any unusual circumstances of any kind, such, for instance, as those inseparably attending a railroad journey.

Inasmuch as the work which was conducted at Brighton was entirely novel, and the commission was not able at that time to gather from the experience of others to what extent the abnormal conditions and strange surroundings would interfere with the proper application of the tuberculin test, it was but natural that these conditions were not fully appreciated in the early stages of the work.

Long custom at these markets had established the practice of having the regular market day for the sale of animals upon Wednesday in each week. In order that the dealers might have their animals at Brighton ready for the market on Wednesday, their regular transportation companies had arranged for trains to bring cattle to these markets so that they should be delivered on Monday night and Tuesday morning of each week. The animals were then allowed a day of rest before being offered in the market, during which time they were given ample feed and water, and whatever attention the owners considered necessary, in order that they might be in as good a condition as possible on the day of sale.

In order to make a proper examination with tuberculin, it is necessary to submit the animal to the test for a period of at least twenty-four hours, not including the time necessary for taking proper preliminary temperature observations, in order to determine with reasonable accuracy the normal temperature of the animal before injecting the tuberculin.

It will be remembered that the conditions which confronted the commission when this work was inaugurated were that the animals, in the great proportion of cases, did not arrive at the market much more than twenty-four hours before they were offered for sale. In order, therefore, that these animals might be tested before being offered in the market, if the market day was kept the same as heretofore and the animals were delivered at the same time, it was necessary to begin the test immediately upon their arrival, and therefore no time was given to quiet the animals before applying the test, or to feed and prepare them for sale in the market after the test was completed.

The first step undertaken, therefore, by the commission, as being the one that would produce the least inconvenience to the dealers, and which they hoped would be accompanied by favorable results, was to change the market day from Wednesday to Thursday in each week. Under this arrangement the tests were begun upon Tuesday night and were not completed until late in the afternoon of Wednesday, at which time the animals which had shown no reaction to the tuberculin were delivered over to the owners. This arrangement was unsatisfactory to the dealers, because it gave them but little more than twelve hours in which to prepare the animals for market,

whereas before they had had more than double that time in many instances. On the other hand, the animals were subjected to the test within practically twenty-four hours, and frequently within less, of their arrival in the market.

Under these conditions this work was carried on until April 30 of this year, when the commission came to the conclusion that it would be impossible to produce satisfactory results with tuberculin unless animals could be allowed a much longer time in which to settle into a sufficiently normal condition before being subjected to the examination.

In this connection it should be remembered that, while this work at Brighton and Watertown was being conducted under these peculiar conditions, the commission was at the same time successfully conducting large numbers of tests throughout the State, in systematic work and in examination of animals reported as suspicious; and it thus had an opportunity of comparing the results of these two classes of work, in which the same diagnostic agent was used, prepared in the same way and derived from the same source; and the commission became convinced that the unsatisfactory results at Brighton were due to the conditions under which the tests were necessarily made, and not to the unreliability of the diagnostic agent.

As bearing upon this, the commission desires to quote the following statement from the eighteenth annual report of the Pennsylvania State Board of Agriculture for the year 1894, official document No. 7, at page 106, published during the present year:—

The experience of the officers of the Board in the administration of this test to more than one thousand animals appears to clearly prove the following points:—

1. That, in proper and capable hands, tuberculin is a safe and sure diagnostic agent for tuberculosis, and that in all the cases coming under our notice not a single error has been shown, although all cases of condemnation by this agent have been followed by careful post-mortems.

2. That great care is absolutely necessary in obtaining the normal temperatures of the animals. We usually start out with the intention of condemning all which indicate a rise of two and one-half degrees or more; and, inasmuch as the normal temperature varies somewhat with the time of day, the season and the time of feeding, some ani-

imals showing a considerable elevation of temperature at the time of feeding, but failing to show any further elevation under the action of the tuberculin, it is therefore very important to obtain the average normal temperature without its being influenced by surrounding circumstances. . . .

9. That exposure to the hot sun, long-continued confinement in an illy ventilated building, unusual changes of food, especially from green to dry feed, failure to water at usual time, and in some nervous animals any exciting cause, may produce more or less variation from the normal temperature. . . .

16. The causes which may produce a rise in temperature without the injection of tuberculin may be enumerated as follows: —

Near approach of calving, which, with some animals, will give a rise of temperature which may mislead. Variations in feed, especially from green grass to dry feed, without sufficient water; errors in this direction have been brought up off green pasture and confined in a barn, on dry food, while the test was in progress. With nervous animals, the excitement due to the presence of strangers and the attending surroundings may cause an elevation of temperature, which, however, from its low rate, should not mislead a careful observer. In fact, any sudden variation in the treatment of the herd may cause a rise in temperature, and, if this is not taken into account, it may at least partially mislead.

Almost every one of these peculiar conditions referred to in this report are met with in the experience of the commission at Brighton.

A further remark might be made in this connection, in regard to the discrepancy between the results as found on post-mortem examination and those indicated by the tuberculin test, admitting the tuberculin to have been applied under proper normal conditions. The post-mortems which are made at Brighton, Watertown and Somerville are necessarily conducted in the ordinary way that field examinations are made, where a large number of animals have to be handled, and where necessarily the examiner does not have laboratory facilities. In such examinations it is customary for the examiner to look for the disease in those organs and portions of the body where experience has shown that it is most apt to be found, and, if the disease is not there found, the examination is not further pursued, because needed additional facilities are not at hand.

In the experience of this commission and others, frequent cases have arisen where the disease has been found in portions of the body not ordinarily examined in the regular post-mortem examination, and in such cases the animal upon the ordinary examination would be pronounced free from disease.

As an instance of this sort, the commission would cite the following case in its experience: an animal was condemned and killed, and a most careful and thorough examination of the more usual locations was made to discover the seat of the trouble. Evidence of the disease not being found, it was then noticed that one of the hind legs was somewhat swollen. The skin was stripped down, and along the chain of lymphatics lying between the tendon and the bone numerous deposits of undoubted tuberculous material, quite patent to the naked eye, were discovered. It is fair to say, further, that this product was taken to the laboratory and examined, and proved to contain large numbers of the bacilli.

A further and very interesting instance in the experience of members of this Board is one wherein, after the more usual examinations had been made and no disease discovered, attention was called to one of the eyes, where, at the inner canthus, an undoubted mass of the tuberculous deposit was found. The diagnosis was proved in the laboratory.

It has occurred further, in the experience of the members of the Board, in their practice as veterinarians, when their attention has been called to a live animal exhibiting disease of either the brain or spinal cord, that, after death, deposits of the peculiar product of tuberculosis have been found within one or the other or both of these organs. It is not usual, in the ordinary post-mortem examinations, to open the cavities containing the brain and spinal cord, because of the great time required and the carefulness of the manipulation necessary; nor is it customary to examine the eyes or the legs, below the larger joints, for the presence of the disease; and yet, had not these examinations been made in these instances, the animals would have been pronounced free from disease, and the error would have been laid to tuberculin.

It is examples of this sort which make the commission, after its long experience, feel that, when tuberculin is applied under proper conditions and clearly points to the presence of

the disease, and post-mortem examination fails to find such disease, it is unsafe to charge the error to tuberculin.

In this connection the Board would call attention to the following extract from a paper read by Dr. W. B. Niles of the veterinary department of Iowa State College before the Des Moines meeting of the United States Veterinary Medical Association. He says:—

When a characteristic reaction occurs, that is, where there is a marked rise above the normal, continuing for several hours, I believe in every case the animal has tuberculosis, whether the post-mortem examination shows the lesions or not; that is, I would place a greater reliance upon the tuberculin test than I would on the post-mortem examination. We all know that the lesions may be easily overlooked, or microscopic, and thus escape detection.

Upon June 5, 1895, a law was passed by your honorable body, being chapter 496 of the Acts of the year 1895, section 14 of which law is as follows:—

Until June first, eighteen hundred and ninety-six, the use of tuberculin as a diagnostic agent for the detection of the disease known as tuberculosis in domestic animals shall be restricted to cattle brought into the Commonwealth from any point without its limits and to all cattle held in quarantine at Brighton, Watertown and Somerville; *provided, however*, that tuberculin may be used as such diagnostic agent on any animal or animals in any other portion of the State upon the consent in writing of the owner or person in possession thereof, and upon any animals condemned as tuberculous upon physical examination by a competent veterinarian.

After the abandonment of examinations at Brighton, Watertown and Somerville, on April 30, the commission watched, as far as it could, the effect upon the market of the withdrawal of quarantine regulations and the consequent throwing open of the market to the free and unrestricted sale of cattle of all kinds. From April 30 to the first day of July, at which time the new regulations came into force, the general character of the animals offered for sale at these markets was distinctly inferior to those which had been offered for sale there under quarantine regulations heretofore maintained by the Board.

The commission also, during this period, had numerous requests from cattle dealers and buyers trading at these markets, urging it to resume its work at these stations, as being of great value to them in determining the soundness of animals there offered for sale. So many applications of this sort were received that the commission deemed it advisable to meet the parties most largely interested for the purpose of discussing ways and means for producing the best results with the least inconvenience to the dealers; and accordingly, on June 8, 1895, the following circular letter was issued, and a copy of it sent to all the interested parties, so far as their addresses were known to the Board:—

52 VILLAGE STREET, BOSTON, June 8, 1895.

DEAR SIR:—The commission will be very glad to meet those interested in the transportation and sale of cattle within the borders of this Commonwealth at the Quincy House, Boston, on the afternoon of Tuesday, June 11, 1895, at 3 P.M., to consider how the work of the commission can be carried on in the best interests of the State, with the least possible inconvenience to those concerned.

Yours truly,

(Signed) F. H. OSGOOD, *Chairman*.

At the meeting which followed, representatives of nearly all of the dealers in cattle coming from without the State were present, as well as of some of those interested in Massachusetts cattle only; to all of whom the following statement was made:—

Inasmuch as chapter 491 of the Acts of 1894, as amended by chapter 496 of the Acts of 1895, provides that animals coming from without the borders of the Commonwealth shall be subjected to the tuberculin test prior to being distributed throughout the State, and the commission has taken the stand that it is impracticable to examine animals recently shipped until they have had time thereafter to settle into their normal condition, which, in the opinion of this commission, cannot safely be set at less than six days, it is for the interest of drovers to have the animals which they propose to ship examined before leaving the State from which they are to come, in order that they may be placed upon the market immediately after arrival.

This proposition, although giving rise to a considerable discussion, was finally adopted by the dealers as being fairly

satisfactory to them, with the additional option, also suggested by the commission, that, when it is inexpedient to have the animals tested prior to leaving the State from which they are to be shipped, they will be received at either of the three markets and there placed in quarantine for a period of not less than six days, at the expense of the owner. At the expiration of that time, if the animals are in a normal condition, they will be tested by this commission without expense to the owner, those found free from tuberculosis will be released, and those which prove to be tuberculous will be condemned and destroyed without compensation.

In arriving at the conclusions upon which subsequent action in this matter was based, the Board was governed largely by the following considerations: in the law which was enacted by your honorable body, the commission felt that it was your desire that animals located within the limits of this Commonwealth should not be further submitted to a compulsory tuberculin test; and the first step taken by the commission, therefore, was to eliminate from quarantine restrictions imposed at these yards all animals arriving there from points within the limits of the Commonwealth. Inasmuch as the commission felt that it was not authorized to require a compulsory examination of all these animals, it did not feel that it was wise or expedient to inaugurate at these markets a system of voluntary tests, because, as had already been shown to the satisfaction of this Board, such tests could not be satisfactorily made unless the animals were first placed under a fairly normal condition. It was further felt that but little good would be derived by the community from the making of isolated tests at these markets upon requests, even though the conditions could be made normal; because it would not insure that all animals at this market were so tested; and because the commission felt that, in view of the amount of the appropriation at its command, the expense in the way of payment of compensation would be too great, for the reason that there would be a tendency on the part of certain persons throughout the State, who had neat stock suspected of being tuberculous, to deliver them at these markets for sale, with the request for a tuberculin test, and in this way large sums would be paid in compensation, without any commensurate

gain to the community, in stamping out the disease, even locally; and, finally, that, inasmuch as the commission had not the power to compel the owners of such cattle to submit their animals to a tuberculin test before arriving at the markets, as was to be done in the case of animals coming from without the State, the expense of continuing examinations at these markets would be too great to warrant the maintenance of such a system for Massachusetts cattle alone.

The problem of properly dealing with cattle coming from without the State had been an extremely difficult one. As a result of the system of examinations theretofore conducted by the commission, it was felt that further systematic examinations of all animals brought to this market from without the State could not be successfully carried on unless ample opportunity was given for the animal to become accustomed to its new surroundings, so that such animal might be in substantially normal condition; and experience had taught the commission that this would require a period of not less than six full days. Inasmuch as the animals were brought to this market on Monday and Tuesday of each week, this meant that they must remain in quarantine over the following market day, and certainly as long as possible before the next succeeding market day; that is, the test could not be properly made before Monday of the following week; but, even under these circumstances, inasmuch as the test would require a period of substantially twenty-four hours, no reasonable opportunity could be given to the owner to prepare the animal for market, after the completion of the test, before the following market day, on Wednesday.

The commission felt, further, that, if this requirement should be insisted upon, it would not only be attended with serious inconvenience and loss to the owners, but also by a considerable expense for extra keep and care, which either the owners or the Commonwealth would have to pay, and which seemed unwarrantable if other possible and less expensive means could be devised.

On the other hand, as a result of the whole work up to this time, the Board felt more strongly than ever that there was no practical means of assuring purchasers that animals were free from tuberculosis except by subjecting such animals to a tuber-

culin test, and that such test must be applied under normal or farm conditions. As a result of all this, it was felt that, if any means could be devised whereby animals could be subjected to the tuberculin test before being shipped to market, it would be a distinct advantage to all parties concerned; that the test would be more apt to be applied under favorable circumstances, and consequently the purchaser would be more certain of the result; that the expense to the owner would be far less, although borne by him, than would be the case were he obliged to maintain a week's quarantine at these markets, while at the same time the saving to the Commonwealth would be very great; and, further, if any animals were found to be diseased, they could be destroyed in the State of their residence, where the owner could receive the compensation provided by the laws of such State, whereas, if brought here and destroyed, he received no compensation.

The commission, having arrived at the conclusion that it was advisable, as far as practicable, to arrange for the admission of cattle coming to these markets after they had been subjected to the tuberculin test in the State from which they were shipped, felt that, at the same time, the permission to bring cattle from without the limits of the Commonwealth to any other points in the State should also be embraced in the same regulation. Prior to the adoption of this rule, it will be remembered that cattle coming to any point within the State other than Brighton, Watertown and Somerville were subjected to the regulations of General Order No. 3, section 10, issued Nov. 20, 1894, as follows:—

After crossing the border, all such cattle are hereby declared quarantined upon premises which shall be defined in the permit, within the limits of such city or town, at the expense of the owner or consignee, and shall there remain until they have been examined and released or condemned by this Board or one of its members. No neat cattle shall be driven within this State from any point without its limits except as herein provided.

Under this system the animal was held in quarantine until such time as the agent of the Board could be sent to the locality and subject it to the tuberculin test. From Dec. 15, 1894, to July 8, 1895, 124 permits of this kind were issued for 1,197

animals. Of these, 306 were examined with tuberculin, 8 were condemned and found diseased upon post-mortem examination, and the balance were discharged from quarantine without examination, because of the absence of funds for continuing the work; although no compensation was paid for any of these animals that might prove to be tuberculous, as they had not been within the State six months prior to being destroyed.

Under this system the tuberculin test proved to be reliable, although the animals had come from substantially the same localities as those in the markets of Brighton, Watertown and Somerville; and the tests were made with the same tuberculin, derived from the same source, applied in the same manner and by the same persons, again demonstrating the importance of the question of environment.

While the scientific results were reasonably satisfactory, this system was found to be unsatisfactory because of its very considerable cost. These animals came to points widely scattered throughout the Commonwealth, requiring the attendance of an agent for an isolated examination; and in such cases the State was obliged to bear the travelling expenses to and from the point, and at the same time the expense of the entire time of the agent was chargeable in most cases to the examination of but few animals.

With the adoption of the system of examinations without the limits of the Commonwealth, as applied to the cattle coming to Brighton, Watertown and Somerville, it was decided to apply the same general rule to animals coming in at other points.

Upon July 8, 1895, the commission issued General Order No. 9, covering the entire matter of cattle coming into the Commonwealth from without its limits, a copy of which, together with an explanatory letter, is as follows:—

COMMONWEALTH OF MASSACHUSETTS.

BOARD OF CATTLE COMMISSIONERS,
52 VILLAGE STREET, BOSTON, July 8, 1895.

To All Persons whom it may concern.

We, the Board of Cattle Commissioners for the Commonwealth of Massachusetts, by virtue of the power and authority in us vested by law, and especially under the provisions of chapter 491 of the Acts of the year 1894 and chapter 496 of the Acts of the year 1895,

have adopted and do hereby issue the following order, for the purpose of preventing the introduction of tuberculosis and other contagious diseases within the limits of the Commonwealth of Massachusetts, and also for that purpose to establish reasonable quarantine regulations covering the importation of cattle from without its limits:—

General Order No. 9.

First.—General Order No. 3, dated Nov. 20, 1894, is hereby repealed.

Second.—All the States and Territories of the United States, other than the Commonwealth of Massachusetts, the District of Columbia, Canada, Great Britain and all other localities without the limits of this Commonwealth, are hereby declared to be infected districts.

Third.—All neat cattle brought within the limits of this Commonwealth from any of said localities on and after July 9, 1895, are hereby made subject to the quarantine regulations herein set forth. Except as provided in paragraph 9 of this order, no such cattle shall be brought within the limits of this Commonwealth, nor shall they be unloaded from any car or vehicle upon or within which they have been transported, except in case of accident, for any purpose whatsoever, except upon a written permit therefor duly issued by the Board of Cattle Commissioners or one of its members.

Fourth.—Every person or corporation desiring to drive, bring or transport, or to cause to be driven, brought or transported into this Commonwealth, from any of the localities designated in paragraph 2 of this order, any neat cattle, shall notify the Board of Cattle Commissioners in writing of his or its intention so to do, which notice shall state the name and residence of the true owner and consignee, the city or town within this Commonwealth through which it is the intention to enter, or, if said animals are to be transported, then of the city or town at which it is the intention that such animals shall be unloaded, the location of the premises within the limits of such city or town where said animals are to be delivered or kept, the name of the true owner or person in possession of the same, the name of the railroad company by which such cattle are to be shipped, and the time when it is the intention that the animals shall arrive within such city or town. Every such application shall be accompanied by a certificate, executed in duplicate, based on a tuberculin test, that, in the opinion of the veterinarian signing the same, each such animal is free from tuberculosis. Each such certificate shall give a description of the animal sufficiently accurate for easy identification, as well as a brief statement of the condition of such animal found upon a physical examination. It shall also state the preparation of tuberculin used, the quantity injected, the temperature ascertained immediately previous to inoculation, and also the temperature at the eleventh hour and every two hours subsequent thereto for a period of at least ten hours, or until the reaction has been completed. The certificate shall be signed by a veterinarian whose competency shall be

certified to by the Board of Cattle Commissioners of the State from which said animals are driven or shipped, or of such other board or authority as may have jurisdiction over the matter of the suppression of contagious diseases among domestic animals in such State or country. Forms of such certificates will be furnished by this Board upon application.

Fifth — If such certificate is satisfactory to this Board, one of said certificates will be retained by this office and the duplicate certificate will be returned to the owner, together with a permit to such applicant to enter and deliver such animal in the manner and at the time and place designated in such application.

In case of every such permit the duplicate certificate of soundness and the permit of entry shall accompany the bill of lading of such animal, or if such animal is driven in on the hoof, then shall be sent with said animal. Upon the arrival of every such animal at the place designated in the permit such animal shall be and hereby is declared to be quarantined upon the premises of the owner or consignee, and at his expense, and shall there remain until such animal has been examined by some agent of this Board thereto duly authorized, or the inspector designated in the permit.

Upon the arrival of such animal, the owner shall immediately notify this office or such inspector or agent as shall be designated in the permit, and shall deliver to such person so notified, or to some agent of this Board thereto duly authorized, the certificate of soundness and permit accompanying such animal. Such animal will be released by such agent or inspector upon being identified as corresponding with the description contained in such certificate, and in such case the person so releasing the animal will detach the duplicate certificate of soundness and return the same to such consignee or owner, and will return the permit to enter, with his endorsement of release, to this office.

If such animal should not correspond, in the opinion of such agent or inspector, with such certificate, such animal will be continued in quarantine and treated as provided in paragraph 7 of this order.

Sixth. — Whenever application is made, as provided in paragraph 4 of this order, to drive, bring or transport, or cause to be driven, brought or transported, neat cattle within the limits of this Commonwealth from any of the localities designated in paragraph 2 of this order, without said application being accompanied with a certificate satisfactory to this Board, as therein provided, a permit will be issued by this Board or a member thereof to enter and deliver such animals in the manner and at the time and place designated in such permit, which permit will state that such animals are not accompanied with a certificate of soundness. Such permit shall accompany the bill of lading of every such animal, or, if the animal is driven in on the hoof, then shall be sent with such animal; and upon the arrival of the animals at the place designated in said permit notice shall be sent, and said permit shall be delivered in the same manner as is provided in paragraph 5 of this order.

Every such animal, if brought within the limits of the Commonwealth by any of the regular lines of steam-rail transportation, as soon as it has



arrived at the place designated in said permit, and every such animal brought in on the hoof or otherwise, upon its arrival at the city or town of entry within the limits of this Commonwealth designated in said permit, shall be and is hereby declared to be quarantined upon the premises of the owner, consignee or person in possession thereof, at the expense of such owner, consignee or person in possession, until such animal shall have been subjected to the tuberculin test, and is condemned or freed, as provided in paragraph 7 of this order.

Such test will not be applied until such animals have been under quarantine restrictions and regulations for a period of at least six days.

Seventh. — Every animal which, in the opinion of this Board or any of its members, after being subjected to a physical examination and to the tuberculin test, is affected with tuberculosis, will be condemned and killed as provided in section 53 of chapter 491 of the Acts of the year 1894. If, in the opinion of this Board or one of its members, after such examinations, such animal is free from tuberculosis, the same will be discharged from quarantine.

Eighth. — Wherever a permit is issued to bring any animal within the limits of this Commonwealth, as herein provided, upon the hoof or in any other manner than upon any of the regular lines of steam-rail transportation, such animal shall not enter this State at any other city or town than the one designated in such permit; and wherever a permit is issued to enter any such animal by any of the regular lines of steam-rail transportation, such animal shall not be unloaded, except in case of accident, within the limits of any other city or town within the limits of this Commonwealth than the one designated in this permit, except after it has been regularly released as herein provided; and any person violating the provisions of this paragraph will be punished as provided in section 47 of chapter 491 of the Acts of the year 1894.

Ninth. — Any person may bring or transport or cause to be brought or transported any neat cattle from any point without the limits of this Commonwealth designated in paragraph 2 hereof, to be delivered by any regular lines of steam-rail transportation directly to the Union Stock Yards at the town of Watertown, the Boston & Albany Stock Yards at Brighton, within the city of Boston, and the premises of the New England Dressed Meat and Wool Company at the city of Somerville, without first obtaining from the Board of Cattle Commissioners or a member thereof a written permit so to do; but such animal shall not be unloaded, after arriving within the limits of this Commonwealth, at any other place, except in case of accident, and in such case as soon thereafter as practicable shall be immediately shipped to one of the places designated in this paragraph. Animals so transported upon being unloaded are hereby declared quarantined. Animals unloaded at Brighton must be unloaded within the Boston & Albany Stock Yards, and are hereby declared quarantined therein upon the premises of the owner, consignee or person in possession. Animals unloaded at Watertown must be unloaded within the Union Stock Yards, and are hereby declared quarantined therein upon the premises of the owner, consignee or person in possession. Animals unloaded at Somerville must be un-

loaded upon the premises of the New England Dressed Meat and Wool Company, and are hereby declared quarantined therein upon the premises of the owner, consignee or person in possession. Such quarantine, so long as the same continues, shall be at the expense of the owner, consignee or person in possession.

Tenth. — Every such animal shall be accompanied with duplicate certificates that such animal is, in the opinion of the veterinarian signing the same, free from tuberculosis. Such certificates shall in all respects as to the form, contents and execution, correspond with the certificate required by paragraph 4 of this order, and shall further contain a statement signed by the person shipping said animal, setting forth the name in full and residence of the true owner of the same and of the consignee thereof. Blank forms of such certificates will be furnished by this Board upon application. Upon the arrival of all such neat stock, the owner, consignee or person in possession shall immediately deliver to the Board of Cattle Commissioners or one of its members or to some agent thereof thereto duly authorized the duplicate certificates above provided for, which shall not be separated by such owner, consignee or person in possession, and shall point out the animal to which such certificate is claimed to belong. If such animal shall be found to correspond with the description contained in such certificate, and if said certificate is satisfactory to this Board or such commissioner, said animal will be immediately released from quarantine, and the duplicate certificate will be returned to such owner, consignee or person in possession.

Eleventh. — All neat cattle brought from any point without the limits of the Commonwealth, designated in paragraph 2 of this order, delivered at any of the premises designated in paragraph 9 hereof, not accompanied with a certificate of soundness provided for in paragraph 10 hereof, satisfactory to the commission or a member thereof, will be continued in quarantine upon the premises of the owner, consignee or person in possession thereof within the limits of said premises, and at the expense of such owner, consignee or person in possession, until such animal has been subjected to the tuberculin test, and has been killed or freed, as provided in paragraph 7 hereof. Such test will be applied upon Monday of each week, but no such animal shall be tested until after the same has remained under quarantine restrictions and regulations for a period of at least six days.

Twelfth. — All neat cattle brought within this Commonwealth consigned directly to the Brighton Abattoir for slaughter shall be confined by themselves for identification, and shall not be released except as herein provided in paragraph 7, or for immediate slaughter.

Thirteenth. — No person shall slaughter or offer or expose for sale (or have in his possession, except under quarantine) within the stock yards at Brighton and Watertown, or within the premises of the New England Dressed Beef and Wool Company at Somerville, any neat cattle brought within the limits of this Commonwealth after the passage of this order, from any point designated in paragraph 2 hereof, which have not been released from quarantine by the Board of Cattle Commissioners or one of

its members, or an agent thereto duly authorized, as provided in paragraphs 5, 7, 10 and 12 hereof.

Fourteenth.—All neat cattle brought within the limits of this Commonwealth from any point without, mentioned in paragraph 2 hereof, except upon written permit of the Board of Cattle Commissioners or some member thereof or as provided in paragraph 9 hereof, are hereby declared quarantined.

Fifteenth.—No person shall drive, bring or transport, or cause to be driven, brought or transported within the limits of this Commonwealth, from any point mentioned in paragraph 2 hereof, any neat cattle except as herein provided; and all cattle brought into the limits of this Commonwealth contrary to this order and regulation will be quarantined at the expense of the owner, consignee or person in possession, wherever they can be found; and such animal shall remain in quarantine as long as the public safety, in the judgment of this commission, requires; and any person violating this regulation and order, or entering cattle within the limits of this Commonwealth contrary to the provisions hereof, will be prosecuted for every such offence.

Sixteenth.—It is further ordered that three copies of this order shall be sent to each city and town throughout the Commonwealth, and that each city and town shall cause a copy thereof to be posted in two or more conspicuous places within its limits, or shall cause a copy of the same to be published once a week for three successive weeks, in some newspaper published within its limits.

Seventeenth.—This order shall take effect upon the ninth day of July, 1895.

FREDERICK H. OSGOOD, *Chairman*,
CHARLES P. LYMAN, *Secretary*,
MAURICE O'CONNELL,
LEANDER F. HERRICK,
CHARLES A. DENNEN,
Board of Cattle Commissioners.

In the case of animals coming to the regular markets of Brighton, Watertown and Somerville, the Board required that each animal should be accompanied by a duplicate certificate in the following form:—

CERTIFICATE OF TUBERCULIN EXAMINATION OF NEAT CATTLE REQUIRED
UNDER GENERAL ORDER NO. 9.

*(To accompany neat cattle brought directly to the stock yards at Brighton, Watertown or
Somerville, from without the limits of the Commonwealth.)*

To Massachusetts Board of Cattle Commissioners, 52 Village Street, Boston.

Original.

(To be retained by the Cattle Commissioners.)

State of 189
City or town of
Owner,
Description of animal,
Physical condition,
Preparation of tuberculin,
Quantity injected,
Date, Normal temperature at P.M.

1 A.M.	9 A.M.	5 P.M.
2 A.M.	10 A.M.	6 P.M.
3 A.M.	11 A.M.	7 P.M.
4 A.M.	12 M.	8 P.M.
5 A.M.	1 P.M.	9 P.M.
6 A.M.	2 P.M.	10 P.M.
7 A.M.	3 P.M.	11 P.M.
8 A.M.	4 P.M.	12 M.

In my opinion, the above-described animal is free from tuberculosis.

Veterinary Surgeon.

City or town of

State of 189

I, shipper of the above animal, hereby certify that the true owner and
consignee of said animal are : —

Owner (name in full),

Residence,

Consignee (name in full),

Residence,

Shipper.

Address,

The above certificate is satisfactory to me, and I identified and released
said animal at the stock yards at on the day of 189

Commissioner.

CERTIFICATE OF TUBERCULIN EXAMINATION OF NEAT CATTLE REQUIRED
UNDER GENERAL ORDER NO. 9.

*(To accompany neat cattle brought directly to the stock yards at Brighton, Watertown or
Somerville, from without the limits of the Commonwealth.)*

To Massachusetts Board of Cattle Commissioners, 52 Village Street, Boston.

Duplicate.

(To be returned to owner or consignee.)

This certificate must not be detached from the original except by a
Massachusetts Cattle Commissioner.

State of

189

City or town of

Owner,

Description of animal,

Physical condition,

Preparation of tuberculin,

Quality injected,

Date,	Normal temperature at	P.M.
1 A.M.	9 A.M.	5 P.M.
2 A.M.	10 A.M.	6 P.M.
3 A.M.	11 A.M.	7 P.M.
4 A.M.	12 M.	8 P.M.
5 A.M.	1 P.M.	9 P.M.
6 A.M.	2 P.M.	10 P.M.
7 A.M.	3 P.M.	11 P.M.
8 A.M.	4 P.M.	12 M.

In my opinion, the above-described animal is free from tuberculosis.

Veterinary Surgeon.

Identified and released by me at the stock yards at on the
day of 189 *Commissioner.*

Upon the arrival of the animals at any of the above-designated markets, a member of the commission or an agent of the Board is present for each market day, to examine and identify the animals arriving. This commissioner or agent not only identifies the animal as corresponding with the certificate, but in each case makes a careful examination of the tuberculin test, as shown upon the face of the accompanying record, to see whether the temperature readings indicate that the animal is free from disease. If all is found to be satisfactory, the certifi-

cate is approved, the animal released, and the duplicate certificate detached and sent to the owner, the original being filed with the records of the commission. This method has been pursued since that date, with substantially no variations excepting that the Board has endeavored to render the identification of the animals more certain, to which end the following order was issued:—

NOTICE TO DROVERS.

We call your attention to the following requirements on cattle shipped from without the State to the quarantine stations at Brighton, Watertown or Somerville:—

First.—The animals must be properly tagged in the ear, or otherwise, so that they may be readily identified by numbers corresponding with the number on the accompanying certificate of tuberculin test; and the certificate must contain a description of the animal sufficient for identification.

Second.—This test must be made by an approved veterinarian, who is vouched for by the Cattle Commission of the State from which the animals were shipped; must state the quantity and preparation of tuberculin used; and the temperature must be registered from the tenth hour after the injection every two hours until the twentieth. Satisfactory test is impossible when the initial temperature is higher than $102\frac{2}{5}$.

Unless the above rules are observed, the animals will be held the usual six days and retested.

(Signed)

BOARD OF CATTLE COMMISSIONERS.

When it is desired to ship animals into Massachusetts to be unloaded at points other than Brighton, Watertown or Somerville, another form of permit is issued. If such animals are to be tested before entering the State, the certificate is in the following form, and is first properly filled by the veterinarian making the test; it is then forwarded to the office of this commission for examination and approval. If all is satisfactory, permission is at once sent to the agent of the transportation company where the animals are to be unloaded. The certificates are at once sent to the local inspector of the same city or town, who then examines the cattle for identification, and, if this is satisfactory, releases them to the owner or consignee.

CERTIFICATE OF TUBERCULIN EXAMINATION OF NEAT CATTLE REQUIRED
UNDER GENERAL ORDER NO. 9.

(To accompany application for entry into Massachusetts.)

To Massachusetts Board of Cattle Commissioners, 52 Village Street, Boston.

Original.

(To be retained by the Cattle Commissioners.)

State of	189
City or town of	Owner,
Description of animal,	Physical condition,
Preparation of tuberculin,	Quantity injected,
Date	Normal temperature at P.M.
1 A.M.	7 A.M. 1 P.M. 7 P.M.
2 A.M.	8 A.M. 2 P.M. 8 P.M.
3 A.M.	9 A.M. 3 P.M. 9 P.M.
4 A.M.	10 A.M. 4 P.M. 10 P.M.
5 A.M.	11 A.M. 5 P.M. 11 P.M.
6 A.M.	12 M. 6 P.M. 12 M.

In my opinion, the above-described animal is free from tuberculosis.

Veterinary Surgeon.

CERTIFICATE OF TUBERCULIN EXAMINATION OF NEAT CATTLE REQUIRED
UNDER GENERAL ORDER NO. 9.

(To accompany application for entry into Massachusetts.)

To Massachusetts Board of Cattle Commissioners, 52 Village Street, Boston.

Duplicate.

(To be returned to owner.)

This certificate must not be detached from the permit, and must accompany the bill of lading on animal.

State of	189
City or town of	Owner,
Description of animal,	Physical condition,
Preparation of tuberculin,	Quantity injected,
Date	Normal temperature at P.M.
1 A.M.	7 A.M. 1 P.M. 7 P.M.
2 A.M.	8 A.M. 2 P.M. 8 P.M.
3 A.M.	9 A.M. 3 P.M. 9 P.M.
4 A.M.	10 A.M. 4 P.M. 10 P.M.
5 A.M.	11 A.M. 5 P.M. 11 P.M.
6 A.M.	12 M. 6 P.M. 12 M.

In my opinion, the above-described animal is free from tuberculosis.

Veterinary Surgeon.

Identified and released by me at the city or town of

189

COMMONWEALTH OF MASSACHUSETTS.

BOARD OF CATTLE COMMISSIONERS,
52 VILLAGE STREET, BOSTON, 189 .

PERMIT TO BRING NEAT CATTLE INTO MASSACHUSETTS.

(To be detached only by the person discharging said animal from quarantine, and when so detached to be forwarded immediately to this office.)

To

City or town of State of

You are hereby authorized to bring within the limits of the Commonwealth of Massachusetts the following animal, the certificate No. of Dr. being satisfactory to this Board, said animal to be brought in in the following manner: , to enter the State at the city or town of , to be unloaded at the city or town of , to be driven directly to, and retained until further order upon, the premises of Mr. Street in said city or town.

On the arrival of said animal at the city or town above named you will immediately notify this commission or Mr. , inspector for said city or town; and said animal is hereby quarantined upon its arrival in said city or town until discharged therefrom by this Board or a member thereof, or by the above-mentioned inspector, who is hereby authorized so to do upon identification of the animal.

Cattle Commissioner.

City or town of 189

I, , hereby certify that I inspected the animal accompanying this permit and the certificate of soundness attached thereto upon its arrival within the limits of the city or town of , and such animal in my opinion corresponded with the description contained in said certificate and permit, and I thereupon released it from quarantine.

No attempt has been made to forbid the introduction of animals which have not had a previous satisfactory test, but in such cases the following form of permit is used:—

COMMONWEALTH OF MASSACHUSETTS.

BOARD OF CATTLE COMMISSIONERS,
52 VILLAGE STREET, BOSTON, 189 .

PERMIT TO BRING NEAT CATTLE INTO MASSACHUSETTS WITHOUT ACCOMPANYING CERTIFICATE OF VETERINARIAN.

(To be forwarded to this office immediately by agent or inspector, together with the duplicate quarantine order.)

To

City or town of State of

You are hereby authorized to bring within the limits of the Commonwealth of Massachusetts the following animal, the same not being

accompanied by a satisfactory certificate that the animal is free from tuberculosis. Said animal may be brought in in the following manner:

to enter the State at the city or town of _____, to be unloaded at the city or town of _____, to be driven directly to, and retained until further order upon, the premises of Mr. _____ Street in said city or town.

On the arrival of said animal at the city or town above named you will immediately notify this commission or Mr. _____, inspector for said city or town, and at the same time surrender this certificate to the person notified.

Said animal is hereby quarantined upon its arrival in said city or town upon the premises above designated, or upon such other premises at which said animal may be found, at your expense or at the expense of the consignee or person in possession, where said animal will remain for a period of at least six days, or until my further order or that of the Board of Cattle Commissioners.

Cattle Commissioner.

BOSTON, 189 .

The above animal, having been subjected to a physical examination and tuberculin test by _____, was freed 189 , condemned by warrant No. _____.

This provides that, after their arrival in Massachusetts, a quarantine of not less than six days shall be maintained; and a tuberculin test by a veterinarian, who must be approved by this Board, shall be made, at the expense of the owner or consignee. If any of the animals are found to be tuberculous, they are destroyed; and if the post-mortem examination shows disease, no compensation is paid.

Applications for this permission are answered in the first instance by the following form of circular letter:—

52 VILLAGE STREET, BOSTON, MASS.

DEAR SIR:—Replying to your inquiry regarding shipment of cattle into this State, permit me to hand you copy of General Order No. 9. Upon receipt of certificate of tuberculin test, made by a veterinarian who is vouched for by the Cattle Commission, or such Board as may have jurisdiction over contagious diseases among domestic animals in the State from which cattle are shipped, we will forward you permit for the animals.

To avoid enforced delay at this office, please see that your veterinarian has been properly certified by his State authorities before employing him, or that such certification reaches us before his certificates of tuberculin test.

If it is inexpedient to have the animals tested before shipment into this State, we will grant you permit to bring them to your premises, provided you will furnish us with certificate of test by an approved veterinarian, without expense to us. Otherwise, cattle can enter the Commonwealth only through the regular stations at Brighton, Watertown or Somerville.

Upon application, we will forward you the required number of duplicate blanks, to be filled out by your veterinarian.

Very truly yours,

(Signed)

F. H. OSGOOD, *Chairman*.

In connection with the whole matter of the regulation of the importation of cattle, the following order was issued to railroad and transportation companies:—

COMMONWEALTH OF MASSACHUSETTS.

BOARD OF CATTLE COMMISSIONERS,

52 VILLAGE STREET, BOSTON, July 15, 1895.

To railroads, corporations, common carriers, their managers, agents, servants and attorneys, owning, leasing, operating or transporting over railroads whose lines or roads enter or lie within the limits of the Commonwealth of Massachusetts, and to all persons whom it may concern.

By virtue of the power and authority in us vested by law, and especially under the provisions of chapter 491 of the Acts of the year 1894 and chapter 496 of the Acts of the year 1895, you are hereby notified that tuberculosis, which is a contagious disease and is so recognized under the laws of this Commonwealth, exists among cattle of the several States and territories of the United States, the District of Columbia and Canada, and such localities are, in the opinion of this Board, infected districts.

Your attention is called to General Order No. 9, issued by this Board under date of July 8, 1895, and you are hereby further notified that, in order to prevent the importation of diseased animals, and as a means of suppressing such disease within this Commonwealth, this Board has passed the following order:—

General Order No. 10.

First.—General Order No. 4, dated Nov. 20, 1894, is hereby repealed.

Second.—No neat cattle brought from any State or territory of the United States, the District of Columbia, Canada or any other country without the limits of this Commonwealth shall be brought within the limits of this Commonwealth, except for delivery directly to the Union Stock Yards at the town of Watertown, the Boston & Albany Stock Yards at Brighton,

within the city of Boston, or the premises of the New England Dressed Beef and Wool Company at the city of Somerville, except upon a written permit signed by the Board of Cattle Commissioners or some one of its members, and no neat cattle so brought for delivery at any of said points shall be unloaded, except in case of accident, at any point other than the said Boston & Albany Stock Yards at Brighton, the Union Stock Yards at Watertown, or the New England Dressed Beef and Wool Company at Somerville.

Third. — All neat cattle brought within the limits of this Commonwealth from any place designated in paragraph 2 hereof, except for delivery as provided in the preceding paragraph, must be accompanied by a written permit issued by this Board or some member thereof, which permit shall designate the number and description of the animals, and you are hereby forbidden to receive for transportation animals other than those designated in such permit.

Fourth. — If, for any cause, any such neat cattle are received by any of your agents within the limits of this Commonwealth at any place other than the Union Stock Yards at Watertown, the Boston & Albany Stock Yards at Brighton, or the New England Dressed Beef and Wool Company at Somerville, not accompanied by a written permit, as provided in paragraph 3 hereof, you will immediately notify this office by telegraph at your expense or that of the consignee, giving the place where said animals were received for shipment, the name of the consignee and destination of said animals. You will not remove said animals or permit them to be removed from the car or vehicle in which they are contained without a permit from this Board or some member thereof, except that if, by reason of the crowded condition of the car, or because of the long confinement of said animals within the same, or for accident or otherwise, it is deemed expedient by you or your agent to unload the same, such animal or animals may be removed by you from said car or vehicle without such permit; but in such case you will notify this office of your intention so to do, and you will not allow said animal or animals to go out of the possession of your agent or off of your premises where said animals are unloaded except upon obtaining such permit.

Fifth. — All neat cattle brought within the limits of the premises at Brighton, Watertown and Somerville, designated in paragraph 2 hereof, are hereby declared to be quarantined.

Sixth. — Any person violating the provisions of this order or of General Order No. 9 will be punished as provided in section 47 of chapter 491 of the Acts of the year 1894.

Seventh. — This order shall take effect upon the fifteenth day of July, 1895.

FREDERICK H. OSGOOD, *Chairman*,
CHARLES P. LYMAN, *Secretary*,
MAURICE O'CONNELL,
LEANDER F. HERRICK,
CHARLES A. DENNEN,
Board of Cattle Commissioners.

The Board takes this opportunity to acknowledge the hearty co-operation and assistance rendered by the various railroad corporations and transportation companies entering the Commonwealth. Without such co-operation and assistance it would have been impossible for the Board to have kept an accurate account of animals transported across the State line, and the Board would have been unable in many instances to locate animals brought into the State contrary to these regulations.

The method of procedure differs with different roads, but is practically as follows:—

Roads entering from the north refuse to accept cattle for transportation across the State line without a permit being delivered at the time of shipment; where this is not forthcoming, the animals are not loaded until a permit is secured by telegraph or otherwise. In all other cases the animals are loaded and shipped with the distinct understanding that, if permission does not reach them at the State line, they will be immediately shipped to one of the regular stations at Brighton, Watertown or Somerville.

All roads within this Commonwealth refuse to switch cattle from off the tracks of any other road unless they are accompanied by the special permit, or have direct permission from the office. So thoroughly have these regulations been observed since the issuance of this order that no trouble whatever arises from this source at the present time. The only possible way for animals to gain entrance to the State other than upon permit, at the present time, is on the hoof; and infringements of this sort are guarded and prevented to some considerable extent through the local inspectors.

Inasmuch as the regulations put in force by this commission so vitally affected the agricultural interests of the adjoining States, because the movement of cattle was as a whole from those States to Massachusetts rather than in the opposite direction, the Board felt that it would be advisable to meet the authorities of the surrounding States, having control over the affairs in charge of this Board, that matters of mutual interest might be freely discussed and means of mutual assistance be agreed upon. Accordingly this Board invited the commissions of the New England States and the State of New York

to meet them in a convention to be held in Boston. This convention was held on July 25 and 26, 1895, and was attended by representatives of the commissions of Maine, New Hampshire, Vermont, Rhode Island, Connecticut, New Jersey and Massachusetts, these States being represented by John M. Deering and Dr. George H. Bailey of Maine; Irving A. Watson and N. J. Batchelder of New Hampshire; C. M. Winslow, Homer W. Vail, H. M. Armes, V. I. Spear and J. O. Sanford of Vermont; E. S. Hough, G. L. Foskett and Clifton Peck of Connecticut; Geo. A. Stockwell of Rhode Island; Franklin Dye and George W. McGuire of New Jersey, and all of the members of the Massachusetts commission.

At this meeting the regulations issued by this Board concerning the movement of cattle into Massachusetts were thoroughly discussed, and it was unanimously voted to adopt these same regulations as governing all of the New England States. It was also voted that all of the States should co-operate in endeavoring to faithfully enforce them. A permanent organization was then formed, under the title of the Association of the Cattle Commissions of the New England States; after which the following resolution was passed by the new association, thanking the Bureau of Animal Industry of the Department of Agriculture at Washington for its material assistance:—

We, the undersigned Cattle Commissioners of Massachusetts, New Hampshire, Vermont, Maine, Rhode Island, Connecticut and New Jersey, assembled in convention at Boston on this twenty-fifth day of July, 1895, desire to take this opportunity of expressing to the Bureau of Animal Industry of the Department of Agriculture at Washington, and to its chief officer, Prof. D. E. Salmon, our high appreciation of the great value which the department has rendered our respective States by the dissemination of all of the facts, as fast as they have become known, in relation to tuberculosis among animals; the results of their valuable investigations with tuberculin, and particularly in furnishing us with a supply of tuberculin, which has been in all cases extremely reliable and satisfactory in its results.

We feel confident, had it not been for this action of the Bureau, and the kind, almost personal care, given us by its chief, that the advances which we feel have recently been made by us in this whole matter could not have been accomplished but by the expenditure of a

very great deal more money and much valuable time by our several States.

(Signed)

FREDERICK H. OSGOOD, *Boston, President.* C. M. WINSLOW, *Brandon, Vt., Secretary and Treasurer.* C. A. DENNEN, *Boston,* N. J. BATCHELDER, *New Hampshire,* V. I. SPEAR, *Braintree, Vt.,* JOHN M. DEERING, *Saco, Me.,* OBADIAH BROWN, *Rhode Island,* CLIFTON PECK, *Connecticut, Executive Committee.* CHARLES P. LYMAN, MAURICE O'CONNELL, L. F. HERRICK, *Massachusetts.* IRVING A. WATSON, *New Hampshire.* HOMER W. VAIL, J. O. SANFORD, *Vermont.* GEORGE H. BAILEY, *Maine.* GEO. A. STOCKWELL, *Rhode Island.* E. S. HOUGH, G. L. FOSKETT, *Connecticut.* GEORGE W. MCGUIRE, FRANKLIN DYE, *New Jersey.*

While, as has been shown, the requirements of General Order No. 9 were accepted, and, so far as possible under the various laws, put into practice by all of the New England commissions, one or two of the States have made further provisions of their own. Those desiring to ship animals from Vermont into any other of the New England States can have them subjected to the tuberculin test by paying the actual cost of the veterinarian's services, provided application is made to C. M. Winslow, Secretary, Brandon, Vt., who will then send a veterinarian of his own selection, and supplied with the tuberculin which is furnished, free of charge, by the Bureau of Animal Industry at Washington, provided that a duplicate record of the test, in each instance, is sent to that Bureau. This provision makes the certificate furnished the Massachusetts Board, from Vermont, the most valuable of any received, as all such examinations are made under the direct supervision of the State authority.

The provision under which the Board of Cattle Commissioners of the State of Maine certify to the competency of veterinarians within their borders to make the tuberculin test upon animals for shipment to other States provides that a return of all tests made by such veterinarians, where any evidence of tuberculosis exists, shall be immediately forwarded to the Board of Cattle Commissioners. This failing, certification of such veterinarian is at once revoked.

The system inaugurated under General Order No. 9 has now

been in operation for a period of more than five months, and has proved, in the opinion of the commission, extremely satisfactory. It has resulted in the saving of the entire expense of maintaining quarantine stations at the markets of Brighton, Watertown and Somerville; it has permitted dealers in cattle to bring in their animals at the regular time, properly prepare them for market and sell them on the regular market day, without material interference; it has, in the opinion of the commission, resulted in preventing the introduction of a large amount of tuberculous animals; and, further, it has enabled the owners to have their animals examined under such conditions as will render the test accurate, if properly applied, and where they may also have the advantage of any indemnity that is paid by their own States.

From the first day of July to the first day of December the records at the markets of Brighton, Watertown and Somerville show:—

Number of Western cattle received for export, which, therefore, did not come under the provisions of General Order No. 9:—

Brighton,	—
Watertown,	66,312
Somerville,	13,409

Cattle brought from without the State and released for immediate slaughter, which, therefore, were not required to have accompanying tuberculin certificate:—

Brighton,	8,165
Watertown,	1,095
Somerville,	1,249

Cattle tested without the limits of the Commonwealth, and accompanied by certificate satisfactory and approved by the Board:—

Brighton,	2,553
Watertown,	3,960
Somerville,	81

Cattle entering this market not accompanied by proper certificate, which were quarantined for a period of six days and then tested with tuberculin:—

Brighton,	712
Watertown:—	
From New York,	155
From New Hampshire and Vermont,	44
	199
Somerville,	76

Number condemned as tuberculous : —

Brighton,	2*
Watertown,	3
Somerville,	4

Number found to be diseased on post-mortem examination : —

Brighton,	2
Watertown,	3
Somerville,	4

As the result of the new regulations, it will be seen that only 14.9 per cent. of the animals arriving at Brighton, Watertown and Somerville, for purposes other than immediate slaughter, or for export, were required to be examined. Of the 987 animals examined, only 9 were pronounced diseased on tuberculin test, and all of these, upon being killed and examined, were found to be diseased.

While the tests so made were but few, the indication from this experience is that tuberculin can be used with almost absolute accuracy at these markets, if it can be applied under proper conditions ; and therefore, if it ever becomes necessary to again inaugurate the compulsory system of examination of all cattle coming to these markets, it must be under some system whereby the animals can be kept in quarantine, under normal conditions, for a period of at least six days.

In regard to the certificates accompanying animals tested without the State, the commission desires here to call the attention of your honorable body to the fact that, while every possible precaution is exercised to insure good, reliable work, as has already been shown, this Board has no actual or personal knowledge as to the conditions under which the test has been applied in any given instance, and it cannot therefore be held to be responsible for any errors that may be made ; but, out of the total number of animals which have entered the State in the past six months, under these certificates, the attention of the commission has been called to but four cases wherein an animal has proved to be tuberculous. In most of these cases, as far as can be ascertained, the difficulty seems to have been

* There were eighteen other animals whose temperatures before inoculation were higher than that upon which action is taken by this Board. Consequently the animals, although subjected to the test, were continued in quarantine for a subsequent test at such time as they should be found to be in normal condition, but upon request of the owners they were released for immediate slaughter.

that the animals were tested under abnormal conditions, such as those met by the commission in its former work at Brighton, Watertown and Somerville. In the earlier part of this work the commission found some certificates which were unsatisfactory because the examiners had failed to make a sufficient number of temperature readings after the tuberculin had been injected; and accordingly a further order was issued, reiterating, in part, General Order No. 9, that "the temperature must be registered from the tenth hour after the injection every two hours until the twentieth. Satisfactory test is impossible when the initial temperature is higher than $102\frac{3}{5}$."

It will be seen that, under the system adopted by the commission at the markets of Brighton, Watertown and Somerville, since the eighth day of July, the cattle offered for sale in these markets are of two classes: those coming from without the State, accompanied by a certificate, approved by the Board, that the animals have been tested with tuberculin and found free from tuberculosis; and those coming from points within the State, which are sold in the market without restriction, and which, therefore, have not been subjected to a tuberculin test. The commission has had no means within its control to obtain any records of the actual sales at these markets, for the purpose of determining the relative selling value of these two classes of animals; it has, however, carefully observed the general condition at the markets, and, so far as it has been able to judge, the tested cows have been sold more readily and at a higher price than untested animals.

There are a large number of buyers at these markets who will not buy animals unless they have been tested with tuberculin and found free from disease; it also appears that the number of these buyers is constantly increasing. There are others who state that they are as ready to buy untested cattle as tested; but, so far as the observation of the commission has gone, these buyers purchase large numbers of tested cattle, at higher prices than the untested, and as a rule the untested cattle are the last to be sold.

In the case of animals coming into the State and arriving at points other than the regular stations of Brighton, Watertown and Somerville, upon special permits, from June 5 to November 25 permits for 7,677 animals have been issued. Of these,

7,078 were accompanied by proper certificates of tuberculin test, which were approved by the commission and the animal discharged from quarantine; 601 were not accompanied by satisfactory certificates, and were held for a period of six days or more, and tested with tuberculin; 16 of these were condemned as tuberculous and destroyed, and all were found diseased upon post-mortem examination.

SYSTEMATIC WORK.

At the time we submitted to your honorable body the report of this Board for the year 1894, the commission was conducting a systematic examination of all neat stock in the counties of Nantucket, Dukes and Barnstable, and at that time this examination, covering the whole of the Island of Nantucket, was fully described upon page 20 of that report. After leaving Nantucket, the same systematic work was continued throughout Dukes County. In this county 1,300 animals were examined, of which 3 were condemned as tuberculous, all of which showed unmistakable signs of that disease upon post-mortem examination. A fourth animal, which showed no reaction to tuberculin, was condemned and killed on account of actinomycosis.

The work in Dukes County was begun on the twenty-ninth day of December, 1894, and was completed upon the twenty-second day of February.

The examination in Barnstable County was begun March 4, at Provincetown, following which the entire eastern portion of this county was examined, up to and including the towns of Harwich and Brewster, where the work ceased upon the twentieth day of May. There were 1,556 animals examined in this county; 6 were condemned, all of which were found upon post-mortem examination to be diseased. In addition, one animal in Truro showed no reaction to the tuberculin test, but was condemned upon physical examination, and upon post-mortem was found free from tuberculosis.

Up to June 4, 1895, when the new law became operative, all the animals in the following towns in Barnstable County had been examined: Provincetown, Truro, Orleans, Wellfleet, Eastham, Chatham, Brewster and Harwich. The work was stopped on the twentieth of May, by reason of failure of suffi-

cient appropriation. An additional reason for stopping at this point was that the town of Dennis, the next in order after leaving Brewster and Harwich, extends entirely across the Cape, thus in itself forming a natural line, in which a good quarantine against incoming cattle might be maintained at a comparatively small expense.

Up to the time of the passage of the law of 1895 the commission had maintained a quarantine against the introduction of all untested cattle throughout the counties where it was doing systematic work. Any person desiring to bring cattle into these counties was only permitted to do so after such animals had been subjected to the tuberculin test. This regulation was necessarily based upon the power in the commission to compel the owner to subject such animals to the tuberculin test. With the passage of the law of 1895 the Board was deprived of this power, and consequently any quarantine maintained by the commission to protect the territory where the systematic examination had been completed, after that time, would have been a violation of at least the spirit of the act. Therefore, on June 4, with the passage of the new law, the quarantine hitherto maintained about these counties was abandoned; and since that date all persons have had the uninterrupted privilege of taking such animals as they desired into this territory.

Inasmuch as the attention of the commission has been called to statements which have been made to the effect that there was a general opposition to the compulsory use of tuberculin, the Board desires here to say that in its systematic work in these counties it experienced substantially no opposition from the owners of the animals tested, and as a rule secured the hearty co-operation of such parties, who seemed to be desirous of having their herds tested and all diseased animals removed, if any were found. In this connection many instances might be cited where parties in these localities who were at first opposed to the use of tuberculin have, upon seeing it used, become convinced of its reliability and usefulness. In the county of Barnstable no opposition was met by the commission in its work until after the agitation of the matter regarding the restriction of the use of tuberculin before your honorable body last year, after which time more or less opposition was experienced in the town of Harwich, where the work was then being conducted.

So far as the commission had knowledge, the owners of cattle in Dennis were desirous, at the time when the commission was obliged to abandon its work, to have the animals in that town examined.

EXAMINATION OF ANIMALS QUARANTINED BY INSPECTORS.

An important branch of the work of this commission in suppressing tuberculosis is the examination of cattle quarantined by the local inspectors as suspected of being tuberculous. More or less of these animals are being constantly quarantined by these inspectors throughout the year, but the great bulk of them are usually so isolated, as the result of their regular inspections. This year, as has already been stated, the first regular inspection was ordered to be begun the 1st of October. The inspectors, however, as heretofore, were required to inspect and quarantine, at any time, all animals which they had reason to suspect were affected with any contagious disease. The quarantines placed by inspectors upon cattle supposed to be tuberculous, since our last report, are from Dec. 15, 1894, to June 5, 1895, 1,776; from this last date to Dec. 15, 1895, 2,239,—a total of 4,015. Of the animals quarantined between Dec. 1, 1894, and June 5, 1895, all were subjected to the tuberculin test, and 795 condemned as tuberculous. Post-mortem examination disclosed the presence of the disease in the case of 780; in 15 no lesions of the disease were found. It will thus be seen that 43.9 per cent. of those quarantined were diseased.

Under the provision of section 14 of chapter 496 of the Acts of 1895, it is provided that, in the absence of written consent, no Massachusetts animal shall be subjected to the tuberculin test unless such animal has been already condemned as tuberculous, upon physical examination, by a competent veterinarian. Whenever, therefore, reports of quarantine are received from inspectors who are not also veterinarians, a “competent” man is at once sent to make a physical examination of suspected animals. It has further been the practice of the Board to obtain, if possible, from the owners of these animals, permission in writing to apply the tuberculin test as a means of reaching a final decision. This permission has been given in all but four or five of the instances. In two of these, after a

physical examination made by a competent veterinarian had failed to disclose the presence of tuberculosis, the animals were liberated. In the other cases they were condemned by a similar physical examination, and examined with tuberculin. All of these animals—being those that were quarantined between June 5 and Dec. 15, 1895—except the two above mentioned were subjected to the tuberculin test; 1,000 were condemned as tuberculous and destroyed, and upon post-mortem examination disease was found to be present in 989 animals. In 3 cases, wherein the post-mortem examinations were made by the agents of the Board, no evidence of disease was found; in the remaining 8 the post-mortem examinations were performed by local inspectors, who reported them to have been free from the disease.

It is impossible to give the accurate returns, at the time of making this report, of the total examinations made upon these inspectors' quarantines, for the reason that the Board is not yet in receipt of returns of all the examinations; and it is probable, therefore, that this total of 1,000 represents the number diseased in a figure of one or two hundred less than the total of received quarantines, as hereinafter given.

TESTS MADE UPON VOLUNTARY REQUESTS.

Prior to June 4 it had been the policy of the commission not to make tests outside of the counties in which the systematic work was being conducted, except in cases where the animals had already been quarantined by the local inspector. In establishing this rule the commission was influenced by the fact that, with the appropriation at its command, it did not seem practicable to carry on both classes of work. There were, however, at this time numerous owners of neat stock throughout the State who desired to have their herds tested with tuberculin, and who were not willing to wait until they could be reached, in the natural course, under the systematic examinations. Arrangements, therefore, were made to authorize the examination of such herds wherein the owner in all instances was willing to pay the expense of making the examination, and the veterinarian employed by him was a fully qualified man in good standing. In such cases the result of the examination, showing in detail the thermometrical readings taken prior to and

after the administration of the tuberculin, was transmitted to the commission for inspection and approval. In this class of work, prior to June 4, 1,514 animals were examined, of which 289 were condemned and found tuberculous, showing 19 per cent. of disease. Upon June 4 the law of 1895 was passed, which restricted the use of tuberculin, so that it became impossible for the commission to further continue its systematic work; and as soon thereafterward as possible the commission gave careful consideration to the matter of carrying out the provisions of section 14 of this law, which provides that tuberculin may be used as a diagnostic agent on any animal or animals in any other (than Brighton, Watertown and Somerville) portions of the State, upon the consent in writing of the owner or person in possession thereof. After giving the matter careful consideration, the Board decided that the best method of eradicating the disease, under the restrictions placed by this act, would be to make tests of entire herds. In arriving at this decision the Board was influenced by the opinion that such a measure would result in the most economical method of administration, because a large number of animals could be tested at one time, by the same agent; that it was more likely to do permanent good, because, by removing the disease from the entire herd, the owner would have an interest, thereafter, in seeing that the disease was not re-introduced into the herd, thus making each owner practically a quarantine agent against untested cattle; and that the cleaning up of an entire herd enabled the public to ascertain readily the sources from which a supply of uncontaminated milk or an animal free from tuberculosis might be obtained. Accordingly the Board adopted the rule that it would test all herds where written application was made by the owner or person in possession, in the order in which such applications were received, so long as the appropriation at the command of the commission was unexpended. These applications are all made upon uniform blanks, of which the following is a copy:—

VOLUNTARY REQUEST FOR TUBERCULIN TEST.

CITY OR TOWN OF .

To the Board of Cattle Commissioners, 52 Village Street, Boston, Mass.

GENTLEMEN:—Believing in the value of tuberculin as a diagnostic agent for the detection of tuberculosis in cattle, and believing that no injury

results therefrom to animals found free from the disease, I hereby request that you subject my herd, consisting of the following animals, to wit, to the tuberculin test, to determine whether or not any of said animals are affected with tuberculosis; this test to be made at the expense of the Commonwealth.

And I agree that thereafter I will observe the sanitary regulations prescribed by the Board of Cattle Commissioners, and will not introduce into said herd any animals without having them first subjected to the tuberculin test.

I further certify that I am the true and lawful owner of said animals, that of said animals have been owned within the State six months continuously prior to the date hereof.

Date received,

Date examined,

No. examined,

No. released,

No. condemned,

Amount approved for animals destroyed,

Warrants No.

Expense,

Upon receipt of these requests, a member of the commission, or an agent of the Board who is also a duly qualified veterinarian, visits the premises where the herd is located. Before the test is applied a careful physical examination is made of every animal in the herd, after which they are subjected to the tuberculin test, and animals which are by these means considered suspicious are condemned and destroyed under the provisions of the act.

The first application which was received by the commission for this class of work was on July 15, 1895, from the town of Cummington. Upon this application 26 animals were examined, 10 of which were found to be diseased, were condemned and destroyed; since which time the commission has received nine additional applications for test in this town. In the early part of this work the applications which were received by the commission, while numerous, were few in comparison to the number received afterwards. Up to December 18 the commission has received 535 such applications. The number received, month by month, has been as follows: —

July,	10
August,	68
September,	74
October,	92
November,	138
December, to the 18th,	153
Total,	535

The following table shows the cities and towns from which voluntary requests for tuberculin tests have been received, those which have been examined and those which remain to be examined:—

CITY OR TOWN.	Number of Herds already tested.	Number of Appli- cations now in Office.	CITY OR TOWN.	Number of Herds already tested.	Number of Appli- cations now in Office.
Adams,	—	1	Fall River,	—	1
Amherst,	2	—	Framingham,	—	4
Andover,	—	1	Groton,	3	6
Ashby,	15	4	Gardner,	10	5
Ashfield,	2	3	Grafton,	—	1
Ashland,	—	1	Greenfield,	—	5
Athol,	1	—	Haverhill,	2	1
Auburndale,	1	—	Hampden,	1	—
Barre,	26	23	Hadley,	1	1
Bolton,	1	—	Holyoke,	1	—
Billerica,	1	—	Hubbardston,	—	1
Bridgewater,	2	2	Holland,	1	—
Burlington,	1	1	Holliston,	1	—
Blandford,	—	1	Hyde Park,	—	1
Blackstone,	—	1	Hatfield,	1	—
Becket,	—	8	Harvard,	—	5
Brockton,	—	2	Hinsdale,	—	1
Buckland,	—	1	Hopkinton,	—	1
Chester,	59	—	Hardwick,	—	2
Chesterfield,	1	—	Hingham,	—	1
Cheshire,	14	2	Huntington,	—	5
Concord,	1	—	Ipswich,	1	—
Chelmsford,	1	1	Littleton,	4	1
Cummingtown,	1	9	Lexington,	1	2
Charlton,	—	1	Lee,	1	4
Colrain,	—	2	Lenox,	—	3
Dunstable,	22	—	Leyden,	—	1
Dalton,	12	—	Marlborough,	11	—
Dudley,	—	4	Marshfield,	2	—
East Longmeadow,	2	1	Milton,	1	—
Erving,	1	—	Medway,	—	1
Franklin,	2	—	Mansfield,	—	1
Foxborough,	1	—	Middlefield,	—	2

CITY OR TOWN.	Number of Herds already tested.	Number of Appli- cations now in Office.	CITY OR TOWN.	Number of Herds already tested.	Number of Appli- cations now in Office.
Melrose,	-	1	Sunderland,	1	1
Millis,	-	1	Shelburne,	-	1
New Marlborough,	2	-	Southborough,	10	6
Norton,	2	5	Sandisfield,	-	4
Needham,	1	-	Springfield,	-	1
North Reading,	-	1	Southbridge,	1	-
North Hadley,	-	1	Stow,	1	-
Northborough,	-	2	Sheffield,	1	-
Northbridge,	1	-	Scituate,	1	-
Oakham,	-	1	Townsend,	19	7
Paxton,	1	3	Tyngsborough,	1	-
Pepperell,	29	5	Tyringham,	-	14
Pern,	-	1	Weymouth,	1	-
Pittsfield,	-	1	Worcester,	6	1
Prescott,	-	1	Westminster,	1	2
Palmer,	1	-	Warren,	1	1
Quincy,	1	-	West Dedham,	2	1
Rehoboth,	-	1	Westborough,	5	11
Reading,	-	1	Webster,	1	-
Royalston,	2	-	Westhampton,	1	1
Shrewsbury,	-	1	Wilmington,	1	-
Sudbury,	-	1	West Boylston,	1	-
Sherborn,	4	2	Waltham,	1	2
Sutton,	2	2	Whitman,	-	1
Savoy,	-	1	Wilbraham,	-	3
South Hadley,	-	1	Williamsburg,	1	3
Sturbridge,	-	1			
South Deerfield,	-	2	Herds,	314	221

Upon these applications the following number of animals have been examined in the different counties, prior to December 1:—

Middlesex,	1,263
Worcester,	1,058
Hampshire,	340
Essex,	67
Berkshire,	279
Hampden,	64
Norfolk,	140
Plymouth,	58
Bristol,	13
Franklin,	69
Total,	3,351

Between December 1 and 16 inclusive there have been in addition 742 animals examined, making the total number to December 16, 4,093. Of this total number, 1,081 were condemned upon tuberculin test and killed. In 1,079 cases the disease was found upon post-mortem examination, and in 2 cases no evidence of disease was found. It will thus be seen that the percentage of disease in these herds was 26.3 per cent. and the percentage of error was $\frac{1.85}{1000}$ of 1 per cent. In all of these cases the animals were subjected to the tuberculin test under normal conditions, and the commission and its agent were accorded every assistance by the owners of the herds, again showing the great value of having the animals surrounded by persons and conditions with which they are perfectly familiar and friendly while undergoing the test, and the remarkable accuracy of the test under such conditions.

We desire, in this connection, to call your attention to the fact that the herds which were tested upon these voluntary requests were, as a rule, those which were being kept for dairy purposes, being apparently in good, healthy condition, in which, although the owners in numerous cases suspected that disease might be present, it was practically impossible for them to pick out diseased animals by means of any physical examination; and, believing that the disease could be removed only by the use of tuberculin, they requested the Board to make the examination. In these herds, while the members of the commission might and did pick out here and there an animal upon physical examination which they suspected of being tuberculous, as a whole there was nothing to indicate the disease; nor was it possible, by such means, to pick out or even suspect the existence of the disease in any more than an occasional case here and there among the animals which were submitted for examination.

In every county in which tests have been made upon voluntary requests disease has been found to a greater or less extent among the herds so tested. Of the 314 herds examined, 24 herds have been found to be absolutely free from disease. While the percentage of disease (26.3) found is surprisingly large, it compares favorably with that found under similar conditions in other parts of the world, where the examinations

have been as rigidly made as here ; as, for example, in the case of New York, where 34.9 per cent. of the animals examined under similar conditions were found to be diseased.

In attempting to deduce from these figures the probable amount of disease in the State, it should be remembered that, while these examinations cover a large number of animals, as compared with the total number in the State, they are but few, and in the majority of cases the owners had some reason to suspect that disease might be present, although they had no means of judging to what extent.

The table showing the voluntary requests received by the commission also shows that applications have been received to test 221 herds, embracing 3,346 animals, which have not yet been attended to on account of lack of sufficient appropriation. In addition to the examinations made upon these voluntary requests, further tests have been made by private veterinarians and approved by this Board covering 584 animals, of which 90 were condemned, and 89, or about 15.2 per cent., were found to be diseased.

The work of the commission in attending to the examination of herds upon voluntary requests has been extremely satisfactory. It has resulted in the removal of a large number of diseased animals which otherwise would be the source of the milk and food supply of some considerable number of people. It has demonstrated that the disease exists in almost every county of the State, and it has further demonstrated that in tuberculin we have a reliable agent, by means of which we can with substantial accuracy pick out all cases of the disease where the germ has gained any lodgement whatever in the animal's body.

The commission has experienced during the past year more or less scepticism as to the value of tuberculin as a diagnostic test, and there has been a feeling, to a greater or less extent, that the use of tuberculin is an injury to sound animals. The Board has found, however, in connection with this class of work, in almost every case wherein herds have been examined upon voluntary request, that upon the completion of its work numerous requests were immediately received from the owners of cattle in the immediate neighborhood ; and, as the work has progressed, the confidence in the use of tuberculin has grown

and the demand has increased to the extent which has already been shown.

In a large percentage of the cases where the animals have been condemned by tuberculin the owner or his representative has been present at the post-mortem examinations, and the commission has no knowledge of any instance in which the owner has not been satisfied with the result as finally declared.

Before leaving the subject of voluntary requests, the commission feels that it should call the attention of your honorable body to this class of work, as bearing upon the question of the best method of procedure in the matter of the suppression of tuberculosis among cattle. Under the law which is now in force, the owner receives for every animal destroyed as tuberculous by order of the commission, provided the animal has had the required residence in the State, the full value thereof at the time of condemnation, not exceeding the sum of \$60 for any one animal. The average amount received by such owners in compensation, under the provisions of this act, has been about \$35. Under the law of 1894, which provides for the payment of one-half the sound value, the average price paid for such animals up to the fifteenth day of December of last year was \$18.36. From the fifteenth day of December up to the fourth day of June, also half value, the average price was \$21.* In addition to this, the State bears the expense of making the examinations, so that, whether the work is done by systematic examination or in response to voluntary requests, the owner is given an opportunity, which, in the opinion of the commission, is a very valuable one, to have the sources of the disease removed from his herd without expense to himself, and without loss growing out of the destruction of any animal, — unless, of course, such animal has a fancy or pedigree value.

In either class of work State animals only are tested, and every diseased animal destroyed removes one more source of contagion and menace to the public health through the sale of the milk derived therefrom. In the case of the examinations conducted on the systematic plan, the commission is working by force of law, and to a greater or less extent without the co-operation of the owners; whereas, in the case of examina-

* Under the law of New York, which provides for the payment of half compensation, similar to our law of 1894, the average price paid for animals destroyed has been \$23.25.

tions made upon voluntary request, it works, in every case, with the co-operation and assistance of the persons in charge of the herd. Other things being equal, it follows that better work can be done under the latter conditions than under the former. There is no doubt that, in examining herds upon request, the commission is removing a very great amount of diseased animals which are scattered throughout the State, and which are the source of the local milk supply; and it is also removing the disease from barns, many of which, it is to be hoped, will be protected by the owner against the further introduction of disease. The examination of herds upon voluntary request has not only given the owner an opportunity to remove the source of contagion, but in repeated instances has resulted in a public demand by the consumers of milk in such city or town that the herds from which they derive their milk shall also be tested. This has greatly assisted in the cleaning up of localities of greater or less extent, in substantially the same way as would be done upon the principle of systematic examination.

While this system of examination furnishes an opportunity to the owner to remove the disease from his herd and to the commission to remove the sources of contagion therefrom, it must also be remembered that there are numerous owners of herds who have not and probably will not make applications for such tests; although it is the feeling of the Board, based upon its experience at the present time, that the number of such people will decrease at a very rapid rate as the advantages of the test become more widely known, and as such persons find that the public refuses to receive the product from untested herds.

Another advantage of the herd work is, that it gives to the owners of neat stock an opportunity, if they so desire, to immediately clean up their herds, and by this means to furnish milk free from tuberculous taint to their customers; whereas, by the systematic work, no direct advantage is derived by the owners outside of the counties in which such work is being conducted, and thus it would result that certain portions of the State would be without this advantage for possibly many years to come. On the other hand, it must be remembered that, tuberculosis being a contagious disease, the State cannot expect to eradicate it by means of examinations of isolated herds upon

written request. Such a method will diminish the risk of transmission of the disease to the human family, through the milk, by the destruction of just as many animals as are found to be diseased, and undoubtedly will to a great extent, in certain localities, result in the suppression of the disease. It cannot for a moment, however, be considered as adequate, if we hope or desire to eradicate tuberculosis. No plan can do that which does not eliminate every diseased animal and thoroughly disinfect the premises which have been inhabited by it; and, just so long as tuberculous animals are left within the State, such animals will act as a menace to others with which they may at any time be brought in contact, and may in this way constantly create new sources of contagion.

It may be argued that, by cleaning up herds upon voluntary request, the commission is doing in a small way what is being done on a large scale by systematic examination; but after these herds are examined it is impossible to practically quarantine them against the introduction of new sources of contagion. Such animals are during a considerable portion of the year turned out to pasture, where they may come in contact with animals in adjoining pastures which have not been subjected to the test, and thus the disease may re-enter the herd. Again, while the owner may in most cases have an interest in protecting his herd, cases are likely to arise where, under special pressure, he may introduce untested animals, which may and probably will result in the reinfection of the herd. As a question of ultimate policy, looking to the eradication of the disease, the commission has not changed its view, as heretofore expressed, that no method can be devised to accomplish this except one which is based upon a thorough systematic examination, with tuberculin, of all animals within the State, the thorough disinfection of all premises where the animals have been, and stringent quarantine restrictions against the introduction of untested animals.

On the other hand, for the present there is no doubt that the examination of herds upon voluntary request is a great benefit to the agricultural community, and to the public who are the consumers of their product. It is impossible for the commission, with the assistance which it is able to get, and with the appropriation which has been or is likely to be made, to do

both classes of work ; and the Board is to-day in receipt of voluntary requests in greater numbers than it is able to attend to.

TUBERCULOSIS.

As experience ripens, we find that the contagious principle of bovine tuberculosis is fully as strong or stronger than was at first supposed. The reason for this seems to be entirely embraced in the fact that in tuberculin we have a much more perfect diagnostic agent than we have ever had previous to this time ; and the results of investigation show that tuberculosis may be very quickly extended from the diseased animal to other healthy animals with which it may come in contact, but that in a large majority of cases the extension is exceedingly subtle. The animals, although they become affected, do not become sufficiently so to be attractive in their symptomology ; whereas, with the use of tuberculin it is found that the animals are affected very quickly after exposure, and that the disease is largely disseminated throughout the herd ; that it is received and amplified, by the newly infected, in a very small lesion, situated, more probably, in some of the deeper-seated glandular structures of the body, and then, because of the inherent resisting power of the animal, it does not receive a further development until after the lapse of some time, extending even to years in many cases.

Prevalence.

Upon page 28 of our report for last year will be found a statement as to the prevalence of this disease in other countries, gathered from such statistics as the commission was then able to obtain, and a statement that the Board had not been able, up to that time, to gather information sufficient to make any valuable estimate for determining the amount of such disease in Massachusetts. As the result of the experience of the Board up to that time, however, it was found that 24.58 per cent. of animals reported as suspicious by local inspectors were found to be diseased ; 6.21 per cent. of animals examined at Brighton, Watertown and Somerville, and .9 per cent. of the animals examined on the Island of Nantucket. From all of these figures and such other data as could be gathered, the Board was then of opinion that the amount of disease in the State

might be in the neighborhood of 10 per cent., which, under the circumstances, was a mere estimate.

Since the introduction of the tuberculin test, the whole number of animals examined by the Board with this agent is 26,958 : —

Number condemned as tuberculous,	4,389
Percentage of diseased animals in all classes of work, . .	16
From Dec. 15, 1894, to Dec. 15, 1895, the total number of animals reported by the local inspectors and quarantined as suspicious, which have been examined by the Board, is	4,015
Number condemned as tuberculous,	1,795
Percentage of diseased animals,	44.7
From June 5 to December 16 the total number of animals examined upon voluntary request is	4,093
Number condemned as tuberculous,	1,081
Percentage of disease,	26.4
In the counties of Dukes County and Barnstable the total number of animals examined is	2,856
Number found to be tuberculous,	9
Percentage of disease,31
Total number of carcasses examined in slaughter houses, .	18,738
Number condemned,	192
Percentage of disease,	1
Total number of animals examined at Brighton, Watertown and Somerville, from December 26 to April 30, .	6,270
Number found diseased,	256
Percentage of disease,	4

Since the adoption of the new regulations relating to interstate cattle, substantially all of these animals are examined before coming here, therefore statistics of no value can be gathered from the few that have been examined and killed in this State. The percentages shown above vary so widely, according to the class of work, that the commission feels again that it is impossible to make any reasonably accurate statement as to the actual percentage of the disease existing within the State. In estimating the percentage of disease, the result of the examination of animals quarantined by local inspectors is naturally very largely in excess of the actual amount of disease in the State, because these are animals which present such symptoms as render them suspicious of being tuberculous. Whether or not the figures gathered from the herd work may be considered as showing the average amount of disease in the

State is also a matter of some doubt, for the reason that in a large percentage of these cases, at least, the owners presumably suspected the disease to be present before requesting the test. In this connection it is also of interest to note the amount of disease found in various herds which have been examined by the commission upon voluntary request.

The following table shows a number of miscellaneous herds in which a large percentage of disease has been found :—

Voluntary Requests.

CITY OR TOWN.	Number Tested.	Number Condemned.
Haverhill,	41	21
Littleton,	27	20
Gardner,	28	11
Barre,	10	10
Norwood,	10	10
Blackstone,	10	10
Quincy,	11	7
Dunstable,	14	13
Ashby,	9	9
Waltham,	36	26
Dalton,	16	9
Dedham,	48	26
Marshfield,	15	13
Whately,	16	15
Palmer,	40	18
Webster,	45	20
Sherborn,	36	25
Burlington,	15	14
Cheshire,	24	10
Cheshire,	27	10
Shelburne,	37	22
Ashfield,	40	32

In other words, the percentage of disease in herds thus far examined varies all the way from 0 up to 100 per cent. This table also shows that the disease is not by any means restricted to the more closely populated districts. Large percentages of disease are naturally found in localities where, from the nature of the business carried on, a large number of animals are exchanged. In localities where animals are raised on the farm and the supply kept up in that way, the percentage of disease is generally found to be small, excepting that, when disease has once been introduced into any given herd, large numbers of cases are almost surely found in that herd, whatever the

conditions are under which it is maintained. Statistics gathered from the returns from slaughter houses are, in the opinion of the commission, of little value in determining the prevalence of the disease; because, in the first place, under the present law all such diseased carcasses are, if found, destroyed without compensation to the owner; and, in the second place, this examination as at present conducted is, as has been shown, not by any means full. In other words, people will not slaughter animals in licensed slaughter houses in this State if there is any symptom of unhealthiness about them.

The records of the Copenhagen slaughter houses for the years 1890-93, inclusive, show:—

Number of oxen and cows slaughtered,	132,294
Number of these found diseased with tuberculosis,	23,305
Percentage,	17.7
Calves slaughtered,	185,765
Number found diseased with tuberculosis,	369
Percentage of disease,2

In the Berlin slaughter houses, for the years 1892-93:—

Total number of oxen and cows slaughtered,	142,874
Number showing evidence of tuberculosis,	21,603
Percentage of disease,	15.1
Total number of calves slaughtered,	108,348
Number found tuberculous,	125
Percentage of disease,11

Bollinger, in the Munich "Medical Weekly," states:—

While it has been supposed that neat stock generally are affected with tuberculosis to the extent of $\frac{2}{3}$ per cent., excepting milch cows, which were supposed to be affected to the extent of $\frac{5}{7}$ per cent., the statistics from the slaughter houses, and by the use of tuberculin, show this disease to be much more widespread.

In a slaughter house at Berlin, from April 1, 1891, to April 1, 1892, 15 per cent. of the 21,000 animals slaughtered were found tuberculous. In the year 1893, in twenty towns in the kingdom of Saxony, out of 69,164 animals, 12,630, or 18.26 per cent., were affected. As showing the percentages of disease among the various classes of animals killed, the following statement is interesting:—

16,128 bulls killed, 1,947, or 12.07 per cent., infected.
 23,851 oxen killed, 3,437, or 14.41 per cent., infected.
 28,784 cows killed, 7,175, or 24.92 per cent., infected.

Leipzig Statistics.

[Figures mean per cents. of those slaughtered.]

YEAR.	All Animals Infected.	Bulls.	Oxen.	Calves.	Cows.
1888, . . .	11.1	11.2	7.3	5.0	17.5
1889, . . .	14.9	11.8	13.7	9.18	19.4
1890, . . .	22.3	17.8	20.9	9.4	27.8
1891, . . .	26.7	18.4	27.7	13.2	31.1

At the slaughter houses in Schiverin the following statistics are given as infected:—

YEAR.	All Kinds.	Oxen and Bulls.	Cows.
1886,	10.70	6.4	12.83
1887,	11.03	4.9	13.50
1888,	12.89	6.6	14.95
1889,	12.35	6.5	14.52
1890,	15.69	5.0	19.39
1891,	18.60	6.9	23.37
1892,	21.47	13.45	24.66
1893,	26.60	21.46	28.50
1894,	35.00	34.00	35.70

Finally, Bollinger gives the figures presented by Bang to the Congress at Budapest, concerning the spread of tuberculosis in Denmark:—

On the 327 farms 8,401 animals were subjected to the tuberculin test, and 3,362 reacted, or 40 per cent. At a farm in Seeland, of the 208 animals tested, 80 per cent. of all the cows and 40 per cent. of the oxen and calves reacted. The cows that reacted were separated from the healthy ones, and as they calved the calves were taken and fed on sterilized milk. After several weeks those calves that were separated when injected with tuberculin showed no reaction, while ten per cent. of calves not separated showed the reaction during the first year of life.

Numerous other statistics might be cited to show the prevalence of this disease in different portions of the world, but a sufficient number are here quoted to show that it has a strong

foothold among neat stock everywhere, and that it is apparently gaining ground.

In the report, made in 1895, of the Royal Commission of Great Britain, to inquire into the effect of food derived from tuberculous animals on human health, after citing the above statistics relating to the Copenhagen and Berlin slaughter houses, we find the following :—

There do not exist for the United Kingdom any records with which these can be compared. At Copenhagen and Berlin all the meat furnished to the towns is submitted to the inspection of experts. But we have reason to think that the facts about tuberculous animals would exhibit a broad resemblance to the foregoing if such records could be obtained; not more different in degree, that is, than the difference seen between the Copenhagen and Berlin records, or than would be explained by variations in the practice of dealing with food animals in one and another country. Such few data as are to be had for the United Kingdom confirm this view. Three hundred milch cows had to be slaughtered in Edinburgh in 1890 on account of the appearance of epidemic pleuro-pneumonia there, and their carcasses were examined as to the presence or absence of tuberculous matter in them. Of the 300, 120, or 40 per cent., were found to be tuberculous, the percentage varying between 12 and 83, according as they came from one or another cow house. In Edinburgh, again, out of 27,769 cattle bought for slaughter at the public abattoir in 1890, 179, or .65 per cent., were condemned as being tuberculous, this percentage having risen from .16 in 1887, when the system of examining for tubercle was begun there. Five pigs were condemned in 1890, out of 4,973, and no calves out of 5,160; no record is given about sheep.

THE USE OF MILK AND MEAT COMING FROM TUBERCULOUS ANIMALS.

In the report of this Board for 1894 there will be found on pages 31 to 37 a discussion of the dangers to the public health through the use as food of the flesh and milk of tuberculous animals; and numerous statistics are there cited, tending to show that the use of these products is attended with a considerable amount of danger. While there may be a considerable difference of opinion as to the actual extent of the danger, or as to whether the disease in any particular case can be proved to

be directly traceable to the consumption of these products, the general consensus of opinion among those best qualified to judge of the matter is that milk and meat derived from tuberculous animals should not be used as human food. In addition to the statistics in this connection, cited in the report of last year, we desire to call the attention of your honorable body to the following quoted opinions, all of which have been received since the date of our last report.

In a set of resolutions passed on Sept. 12, 1895, by the United States Veterinary Medical Association, in the convention held at Des Moines, Ia., the following occurs : —

Whereas, Tuberculosis is an infectious disease, dangerous alike to man and the lower animals ; and

Whereas, Scientific experimentation has demonstrated the possibility of transmitting the disease through dairy and other animal products from tuberculous animals ; and

Whereas, The extensive use of tuberculin as a diagnostic agent has thoroughly demonstrated its high value for that purpose ; therefore, be it

Resolved, That it is the judgment of the United States Veterinary Medical Association that it is the duty of sanitary boards and other health officers to employ all practical methods calculated to restrict this disease.

Resolved, That we regard the tuberculin test as the only reliable means now known to the scientific world for detecting obscure cases of tuberculosis in the living subject, and that it is a reliable test when performed under proper and well-known necessary conditions. It is further —

Resolved, That reliance upon the physical examination of animals for the existence of tuberculosis is unwise, deceitful and unwarranted in the present day.

In the last International Veterinary Congress, held at Berne, Switzerland, in September, 1895, the following conclusion was reached and promulgated as being the opinion of the Congress : —

The flesh of tuberculous animals, if sold, should be subject to special regulations.

A part of this flesh must be destroyed, but some of it may be safely used for food.

The milk from cows with tuberculous udders is extremely dangerous.

The milk from tuberculous cows with apparently healthy udders may be dangerous, and is always suspicious.

In the year book issued by the United States Department of Agriculture for the year 1894 the following occurs : —

The dilemma in which the demands of public health have put the owner of cattle, as well as the health officer, has already been stated. The following statements referring to this subject are based upon a careful study of the distribution of the disease in a large number of animals. It needs to be emphasized here that arguments deduced from the superficial examination of a carcass and the simple determination of the presence or absence of tuberculosis are worth little or nothing in attempting to solve the problems presented by the sanitary side. Only a thorough survey of the entire distribution of the tuberculous deposits in animals furnishes us with approximately correct data.

The flesh of those infected cattle in which the disease is restricted to one or two primary foci must be regarded as entirely harmless and of full nutritive value. Even in advanced cases, which should always be rejected, the glands embedded in the muscular tissue are found infected only occasionally.

The condition of the milk in different stages of the disease is a question of much greater importance, and demands the most careful consideration. We may, for convenience and clearness, typify three stages : —

1. In the earlier stages of the disease, provided the udder is normal, the milk is free from tubercle bacilli.

2. In the more advanced stages, provided the udder is normal, the milk may or may not contain tubercle bacilli. If the disease has become generalized, the indications are that at some time or other tubercle bacilli may pass into the milk. This passage is revealed at the autopsy by disease of the glands or the udder. The indications are that this passage is largely temporary, perhaps lasting only a day before the tubercle bacilli are caught up and filtered out into the lymphatic system. The indications are, furthermore, that comparatively few bacilli pass through the udder. The udder itself does not favor their development there, and the closest inspection fails to reveal any augmenting foci of disease. These statements are based upon careful examination of slaughtered cattle and the thorough testing of the milk from advanced cases.

3. When the udder is affected in any stage of the disease, a most grave condition is presented. Tuberculosis of the udder in most

cases comes on in the later stages, when the virus is distributed by the blood from some disintegrated earlier focus of disease. Primary tuberculosis of the udder, that is, infection from without, has not yet been established definitely, and is probably of very rare occurrence. When the disease has started in the udder itself, tubercle bacilli may be discharged in the milk in large numbers and for long periods of time. The smaller the herd, in such a case, the more dangerous the entire milk becomes, because of the concentration of the virus.

Udder tuberculosis is thus a most serious danger, the importance of which cannot be too strongly urged. Fortunately, it is rare. The writer has encountered, among two hundred infected animals, only one case of udder disease, and sixteen others which, according to the post-mortem studies, may have shed at one time or another tubercle bacilli into the milk in small numbers, but which had no recognizable disease of the udder itself. The large percentage of udder tuberculosis reported by several writers lately is incompatible with all former statistics, and indicates either an unprecedented condition in certain localities or else an error in diagnosis. The stock owner, in the absence of proper dairy or other official inspection, is under serious moral responsibilities to remove from his herd those animals in which there is even a suspicion of udder tuberculosis. Any udder which is found to increase slowly in size without any indication of inflammatory processes, recognizable by the presence of heat, pain and redness, and which becomes very firm without showing at first any alteration in the appearance of the milk, should be regarded as infected, the cow promptly segregated, and the entire milk rejected until a diagnosis can be made by a veterinarian.

In view of the fact that tuberculin does not discriminate between dangerous and harmless cases, the public health problem as it presents itself in practice is simply this: what shall be done with all the cattle which give the tuberculin reaction, in order that we may catch and destroy the ten per cent. of slightly and temporarily dangerous cases among them, or the one per cent. of serious cases? Some of the dangerous cases are so far along in the disease that they are easily detected without the aid of tuberculin, but this is by no means true of the majority. The situation certainly demands a most rigid periodical inspection of all animals furnishing milk to consumers, the prompt removal of all suspicious cases, and, above all, a more thorough control of the dairy in the interest of public sanitation.

In 1890 a Royal Commission was appointed by the government of Great Britain, "to inquire and report what is the effect, if any, of food derived from tuberculous animals on

human health, and, if prejudicial, what are the circumstances and conditions with regard to the tuberculosis in the animal which produce that effect upon man?"

This commission, after nearly five years of consideration and investigation of this subject, at an expense of more than \$90,000, reported on April 10, 1895, and from this report we quote the following:—

The primary object of the commission, to learn the "effect of food derived from tuberculous animals upon human health," was obviously one that could not be attained by direct experiment upon human beings. Yet it was upon this question that there had been least accord among the witnesses, though they did agree in their assurances that there was no valid evidence on the point to be had. The commission undertook, therefore, these inquiries as to the effect of tuberculous food upon the health of lower animals, in the expectation of obtaining information applicable to the case of a human subject.

Dr. Martin selected for his experimental research a variety of animals which differed in their customary food material: pigs, guinea-pigs and rabbits. The animals were fed with their usual food, with the addition of some material (sometimes meat, — much in the sense that a butcher might speak of meat, — sometimes milk, but always uncooked) derived from a tuberculous animal. No particular examination for actual tubercle in the food material was made in the experiments now being recorded, but some care was taken to avoid any obvious mass of tubercle.

Of each kind of animal thus fed, a certain percentage was found to become tuberculous: of pigs, 36 per cent. (5 out of 14); of guinea-pigs, 16 per cent. (24 out of 145); of rabbits, 15 per cent. (2 out of 13).

The experiment comprised also a number of animals kept under the same conditions as the rest (the pigs being members of the same litter), and only differing from the other animals of the experiment by receiving no material from a tuberculous animal in their food. Of these "control" animals (numbering 5 pigs, 203 guinea-pigs and 8 rabbits), none became tuberculous.

We cannot but regard these differential experiments as showing a danger to a healthy animal from the introduction into its food of material taken from a tuberculous animal.

Further, Dr. Martin made experiments, not only with feeding material "derived from tuberculous animals," but with material containing tuberculous matter, recognized as such, and purposely

added to the food of the experimental animal. This was done in the case of 1 pig, 8 guinea-pigs and 10 calves; and of these, the pig, 6 guinea-pigs and 8 calves became tuberculous. In these experiments the tuberculous matter had been taken sometimes from a bovine, sometimes from a human source, and it is noteworthy that each animal received only a single dose of it.

Other experiments with manifestly tuberculous matter are recorded by Dr. Woodhead among a number of investigations made in the course of his own inquiry undertaken for us. He found this matter, given (uncooked) to various animals, gave rise to tuberculous disease in all the pigs (7) and all the cats (5) that received it, and in 50 guinea-pigs out of 76.

These more particular experiments by Drs. Martin and Woodhead, made with matter that had been identified as tuberculous, add much force to the inference derived from Dr. Martin's more general experience. They indicate, in the material used in feeding, the element that is dangerous to the healthy animals which have been fed.

We cannot refuse to apply, and we do not hesitate to apply, to the case of the human subject the evidence thus obtained from a variety of animals that differ widely in their habits of feeding, — herbivora, carnivora, omnivora. As regards man, we must believe — and here we find ourselves agreeing with the majority of those who gave evidence before us — that any person who takes tuberculous matter into the body as food incurs some risk of acquiring tuberculous disease. By "tuberculous matter" we mean here, of course, that which is capable of giving rise to tuberculosis in lower animals. This matter may be found in parts of animals affected by the disease. It is known to the naked eye by some well-marked though various characters, and microscopically by the all but certain discovery of characteristic bacilli, — the bacilli of tubercle.

It is this same matter, however, — known by naked-eye characters that are very closely the same in man and in animals, and by microscopical characters that are all but identical, — that gives rise to tuberculosis in the human subject. And we find the present to be a convenient occasion for stating explicitly that we regard the disease as being the same disease in man and in the food animals, no matter though there are differences in the one and the other in their manifestations of the disease; and that we consider the bacilli of tubercle to form an integral part of the disease in each, and (whatever be its origin) to be transmissible from man to animals and from animals to animals. Of such transmissions there exists a quantity of evidence, altogether conclusive, derived from experiment. It is with the trans-

mission of the disease to man by the ingestion of animal food that the present commission is concerned.

The results of their entire inquiry into this matter are summed up by the Royal Commission as follows:—

We have obtained ample evidence that food derived from tuberculous animals can produce tuberculosis in healthy animals. The proportion of animals contracting tuberculosis after experimental use of such food is different in one and another class of animals; both carnivora and herbivora are susceptible, and the proportion is high in pigs. In the absence of direct experiments on human subjects, we infer that man also can acquire tuberculosis by feeding upon materials derived from tuberculous food animals.

The actual amount of tuberculous disease among certain classes of food animals is so large as to afford to man frequent occasions for contracting tuberculous disease through his food. As to the proportion of tuberculosis acquired by man through his food or through other means we can form no definite opinion, but we think it probable that an appreciable part of the tuberculosis that affects man is obtained through his food.

The circumstances and conditions with regard to tuberculosis in the food animal which lead to the production of tuberculosis in man are, ultimately, the presence of active tuberculous matter in the food taken from the animal and consumed by the man in a raw or insufficiently cooked state.

Tuberculous disease is observed most frequently in cattle and in swine. It is found far more frequently in cattle (full grown) than in calves, and with much greater frequency in cows kept in town cow houses than in cattle bred for the express purpose of slaughter. Tuberculous matter is but seldom found in the meat substance of the carcass; it is principally found in the organs, membranes and glands. There is reason to believe that tuberculous matter, when present in meat sold to the public, is more commonly due to the contamination of the surface of the meat with material derived from other diseased parts than to disease of the meat itself. The same matter is found in the milk of cows when the udder has become invaded by tuberculous disease, and seldom or never when the udder is not diseased. Tuberculous matter in milk is exceptionally active in its operation upon animals fed either with the milk or with dairy produce derived from it. No doubt the largest part of the tuberculosis which man obtains through his food is by means of milk containing tuberculous matter.

The recognition of tuberculous disease during the life of an animal is not wholly unattended with difficulty. Happily, however, it can, in most cases, be detected with certainty in the udders of milch cows.

Provided every part that is the seat of tuberculous matter be avoided and destroyed, and provided care be taken to save from contamination by such matter the actual meat substance of a tuberculous animal, a great deal of meat from animals affected by tuberculosis may be eaten without risk to the consumer.

Ordinary processes of cooking applied to meat which has become contaminated on its surface are probably sufficient to destroy the harmful quality. They would not avail to render wholesome any piece of meat that contained tuberculous matter in its deeper parts. In regard to milk, we are aware of the preference by English people for drinking cows' milk raw, a practice attended by danger, on account of possible contamination by pathogenic organisms. The boiling of milk, even for a moment, would probably be sufficient to remove the very dangerous quality of tuberculous milk.

In a bulletin very recently issued from the experiment station of the Agricultural College of Iowa the following statements are made as a result of investigations conducted by several scientists: —

Milk from tuberculous cows may convey disease to the consumer.

Milk from tuberculous cows having non-affected udders may convey the disease.

At a meeting of the Association of New England Cattle Commissions, held at Providence in September last, many instances were related by the members present of cases which have come to their personal knowledge, wherein, undoubtedly, disease had been communicated to people partaking of the milk of diseased animals. Several delegates related instances where members of their own family had died of tuberculosis, contracted, in their opinion, from the use of the milk of tuberculous cows. It is to be regretted that the statements made at this meeting cannot be more fully given; but, as no shorthand reporter was present, a full report was not made; but the evidence as appealing to those present at the meeting was, to say the least, startling.

Upon this subject Dr. F. H. Rich of the Burlington, Vt., Experiment Station, read a very interesting paper upon the

relations between bovine and human tuberculosis, in which, among other things, he stated that bovine tuberculosis was of comparatively recent date in this country, and was undoubtedly imported. It is undoubtedly infectious, and easily transmitted by tissue or milk to other animals. Where an infected herd is found, the young stock and hogs are often found infected by the milk. There are two kinds of the disease in both bovines and man,—acute and chronic. The symptoms are much the same in both humans and bovines, although, while in man it causes emaciation, the bovines are usually as sleek and fat as ever. The bovines retain their appetite, while the humans lose theirs. He gave several instances where the owners of herds found to be infected with tuberculosis had died with pulmonary tuberculosis, evidently taken from the milk of the animals. Other instances were given where the pricking of a finger on a piece of bone from an infected animal had caused tubercular meningitis. All the standard medical works recognize the use of tuberculous meat and milk, especially the latter, as a potent cause of tuberculosis in man. For this reason the boiling of milk is usually advisable.

Among the various forms of human tuberculosis we have the acute general miliary form, resembling the acute fevers, usually terminating fatally in a few weeks. Then we have several types affecting the lungs more particularly, acute and chronic miliary tuberculosis of the lungs, and acute and chronic tubercular phthisis. Tubercular lymphatic glands are very common, particularly in children. Tubercular meningitis is also becoming quite common in children, while tuberculosis of the intestines and mesenteric lymphatic glands accounts for a large proportion of the deaths of children, particularly in our large cities, from so-called bowel difficulties. The tuberculous affections of the skin are lupus, scrofuloderma and anatomical tubercule. Rectal fistula and much of the so-called chronic diarrhœa are now considered to be of tubercular origin. Tuberculosis of the joints and bones is very common indeed, familiar examples of which are hip-joint diseases, white swelling of the knee and Pott's disease of the spine.

Mortality statistics show that fourteen per cent. of all deaths result from tuberculosis. The human system is equally if not more susceptible to the invasion of this infection than that of

any of the lower animals. Milk is more to be dreaded than meat, because it is taken raw, and the udder is so often the seat of tuberculosis. Even in the absence of tuberculosis of the udder, the milk is sometimes infectious. It is routine practice to place patients upon milk diet during the course of and convalescence from nearly all acute diseases, when, by reason of lowered vitality, they are temporarily predisposed to tuberculosis, thus combining the most favorable conditions for the implantation of the active germ. This fact seems to offer practical explanation of the frequent supervention of tuberculosis upon other diseases.

Tuberculous meat is not liable to infect, if it is thoroughly cooked, because of the sterilizing effect of heat; but the interior of rare steaks and roasts are not sufficiently heated to destroy the tubercule bacilli occurring in the several lymphatic glands included, and in tuberculous pork the bacilli are even found in the muscle proper. The livers of both cattle and hogs, so commonly eaten, are tuberculous in a very large number of cases.

While there is a pretence at inspection in our great packing centres, there is little if any elsewhere in this country. Our home-dressed beef consists principally of old, worn-out cows, an alarmingly large percentage of which are tuberculous. The hind quarters will usually pass detection, which, together with such fore quarters as can be trimmed up and made passable, are sold in our markets. Some parts that will not bear passing scrutiny in the market are converted into corned beef, sausage, or are canned; while such as are too far gone for this are, together with all diseased viscera and other slaughter-house refuse, fed to a drove of hogs kept for that purpose, which in turn contract tuberculosis, are slaughtered and sold in our markets, and thus little of the infection fails to reach some home. The importance of the subject is shown by the mortality statistics, from which it is seen that three million human beings die of the disease every year.

At the close of the meeting the members present passed the following resolution:—

Resolved, That the members of this association are of the opinion, which is based upon personal knowledge and observation, that there

can be no doubt that tuberculosis is frequently transmitted from cattle to the human family; and we therefore recommend the enactment of laws that will suppress this dangerous disease among cattle.

At a meeting of the Suffolk District Medical Society, a division of the Massachusetts Medical Society, held on April 27, 1895, the following resolve was unanimously adopted:—

Resolved, That the existence of tuberculosis among neat cattle within this Commonwealth is a menace to the public health, as we believe that bovine and human tuberculosis are identical, — that is, that they are caused by the same germ, and that it is possible for the disease to be transmitted from the lower animals to man by the use of milk or meat from diseased animals. We shall heartily endorse any methods that may be undertaken by the State which will include a careful and thorough examination of all animals from which milk supply is obtained, and which shall also keep a close supervision over the meat products coming from slaughter houses within the Commonwealth.

Circumstances determining Danger to Man from Meat and Milk of Tuberculous Organs.

In regard to the danger from the use of meat, we quote further from the report of the Royal Commission:—

We regard it, then, as established that any person who takes tuberculous matter into the body as food incurs risk of acquiring tuberculous disease; and we know that this matter may be found in parts of animals affected by the disease. It is therefore of the first importance to us to note what parts of a tuberculous animal are liable to contain this tuberculous matter, having well-marked characters of its own, and among them the bacilli, which form an integral part of the disease. From this view point we would report separately upon meat and milk derived from these animals, and begin our consideration with meat.

We find it necessary, in our study of the “circumstances and conditions, with regard to tuberculosis in the animal,” which endanger human health, to include in our definition of meat the various parts of the tuberculous food animal, and to assume a certain acquaintance with the actual presence of tubercle in the several parts. When, on the other hand, we wish to speak of the customary “joint” of the

butcher, and to exclude organs and other tissues, we refer to it as *meat substance*. We do not propose to consider, except incidentally, carcasses from which the organs have been removed in such wise that the condition of them could not be known to us.

We have now to point out the very great difference in one and another part of a tuberculous animal in the amount of tuberculous matter contained in the meat. This matter is found principally in the organs of the animals; as a rule, most abundantly in the lungs, lymphatic glands, serous membranes, but often in the liver, spleen, kidneys, intestines and other structures. These organs are usually removed by the butcher in "dressing" the carcass, though some of them may, intentionally or not, be left. To a practised eye it is hardly possible that tuberculous matter in these organs can escape detection, and the importance of its presence there will soon be apparent; for in the tissues which go to form the butcher's "joint" the material of tubercle is not often found, even where the organs exhibit very advanced or generalized tuberculosis; indeed, in muscle and muscle juice it is very seldom that tubercle bacilli are to be met with; perhaps they are somewhat more often to be discovered in bone, or in some small lymphatic gland imbedded in intermuscular fat. Yet there is always a difficulty in making sure of the absence of tuberculous matter from any part of a carcass that shows evidence of tubercle elsewhere.

In Dr. Martin's experiments for the detection of tuberculous matter three kinds of test were employed; first, minute examination of the part for tubercle, with the aid of the microscope, to discover tubercle bacilli; secondly, feeding susceptible animals—test animals—with suspected matter; and, thirdly, introducing into the bodies of test animals some of the suspected matter by way of inoculation,—a more delicate test than the process of feeding.

Applying these tests to the meat substance of twenty-one cows known to be tuberculous in one or another degree, he could not get visible evidence of tubercle except in two instances, and there it was of very small amount. He records the results of his other tests as follows: "Of eight cows (mild tuberculosis), the meat of one gave positive results in one animal from inoculation, none by feeding. Of eight cows (moderate tuberculosis), the meat of three gave positive results in four animals from inoculation, none by feeding. Of five cows (generalized tuberculosis), four gave positive results either by inoculation or by feeding," one only out of the four appearing to answer to both tests.

The animals which had yielded affirmative results to his test of minute examination were not among the last five; they were in the

group of cows with "moderate tuberculosis," and had given no result by feeding test animals with meat from their carcasses, though meat from one of the two had, upon inoculation, responded to the test.

These were not the results to be expected from Dr. Martin's experiments, if he were really using muscular tissue (with its usual concomitants, forming "meat substance") containing or not containing tuberculous matter among the fibres. He would not have expected to find himself repeatedly giving rise to tuberculous disease by the use of material in which no tubercle could be detected by his ocular tests. He might have expected, on the other hand, a more uniform affirmative result when he was experimenting with the two cows whose meat had shown to his eye and his microscope evidence of tuberculous matter; though he might have explained a failure to get such results by the small amount of tubercle discovered there. And certainly he did not expect to get, if he was using only such tuberculous material as was present in the muscular tissue of his twenty-one cows, the egregious irregularities which he observed in his feeding and inoculation experiments. He was dealing with a quantity of tuberculous matter supplied to him, not, he reasoned, from the muscular tissues that he had proposed to investigate, but somehow from the general carcass of the cow, and abundant in the matters he was inoculating just as it happened to be abundant in the general carcass, and insufficient in amount, until he came to the maximum amount in the general carcass, to react to the test of feeding, though (with smaller amounts in the carcass) he had sometimes got an answer to the more delicate test of inoculation.

Dr. Martin tried in vain to explain these unexpected results by a hypothesis that he had overlooked some minute tubercles in the small portions of meat that had been used by him in his feeding and inoculation experiments. Even this hypothesis would not account for all the observed facts. And he presently saw another consideration, of a different nature, which he might not have sufficiently taken into his account,—the operations, namely, of the slaughterer and butcher.

Dr. Martin was not, at this stage of his researches, experimenting broadly about things in general taken from the carcass of an animal after slaughter, but he was trying to learn the distribution of tubercle in the body of the animal, in the hope of adding to our knowledge of the conditions which might give to meat the quality of injuring the consumer of the meat. Still, he was dealing with meat, as meat would be sold by the butcher. He had already sought, by discriminating between "trimmed" and "untrimmed" meat, to estimate the risk of including in his own specimens of meat the stuff which, for

little else than for the sake of tidiness, the butcher removes in preparing his joint for sale, and that consists *inter alia* of bits of gland and serous membranes. But, though he had been at some pains to secure that this trimming was done with efficiency, there proved to be no constant line between the trimmed and the untrimmed meat in its effects upon test animals.

He now came to see a real and considerable danger to the meat, of the same nature as that which he had previously sought to estimate when he was careful about the trimming of meat,—a danger that was somewhat less obvious, but would be quite as real. This was, the probability of the meat becoming contaminated from the actual tuberculous lesions, present in other parts of the carcass, and conveyed from thence to the proper meat substance by the hands, knives and cloths of the butcher, during the processes of flaying and dressing. This was a danger that would doubtless increase along with increased abundance of the material of tubercle in the carcass. “The greater the amount of tubercle there is in the cow, the more likely is the sticky caseous matter to get smeared over the carcass;” and much that was inexplicable in the results of feeding and inoculation of test animals would be rendered intelligible.

Dr. Martin writes: “If we imagine that the meat gets contaminated accidentally in this way, it is easy to explain the irregularity of the results: (1) how, for example, in cases of mild tuberculosis of the cow, the danger of contamination is not great, and therefore the meat does not get smeared to any extent during removal, so that no positive results were obtained by feeding, and only one positive result by inoculation, and this a case of local tuberculosis, showing a small dose; (2) how, in cases of moderate tuberculosis, where chiefly the lungs and lymphatic glands in the thorax are affected (and so may be removed entire without incision of a tuberculous lesion), the meat, as in cases of mild tuberculosis, would not become much contaminated, and thus did not produce tuberculosis by feeding; and how in these cases the knife is more likely accidentally to incise a tuberculous lesion than in cases of mild tuberculosis, and that therefore the number of cases of positive inoculation is greater. . . . With generalized tuberculosis of the cow this danger would increase, since so many parts of the body are affected with the disease, so that in such cases we meet for the first time with positive results from feeding, but not uniformly positive . . .

“Taking all the results together, the method of removal of the meat, the results of inoculation and of feeding, one is driven to the conclusion that when meat is infective it commonly acquired its properties by being accidentally contaminated with tuberculous material

during its removal from the carcass. This conclusion, it is evident, is one of great practical importance, bearing directly on the question of the condemnation of the meat of tuberculous cattle for human consumption. And it is evident, also, that the infective properties of meat might vary with different series of experiments; . . . the result depends on the care taken in guarding against contamination more than on anything else. The conclusion arrived at in part explains the extremely divergent results obtained by previous observers."

The observations by Dr. Martin cannot altogether dispose of this hypothesis, that the unexpected affirmative results obtained by his feeding and inoculating experiments may have been due to the presence of unobserved tuberculous matter in the meat substance, possibly in the actual muscular tissue; but they certainly show another and more obvious way in which these results may have been brought about. To have demonstrated this extrinsic way of rendering dangerous the meat substance of tuberculous animals, is to destroy all evidence that might otherwise have been obtained respecting the wholesomeness or unwholesomeness of the proper meat substance towards his test animals.

We note, in passing, that this method of endangering the meat substance could not have been detected upon carcasses from which the organs, together with any "grapy" deposit, had been removed. And it is pertinent to observe, in connection with a contamination so effected, that this extrinsic danger to harmless meat (or to meat that was, for all that is shown to the contrary, harmless) might just as well be encountered by meat from another animal (whether pig, sheep, or calf, ox or cow) that was perfectly free from tubercle, but only had happened to be the next animal brought to the same slaughterer.

Having regard to Dr. Martin's invariable failure to produce tubercular disease by feeding (though he sometimes did succeed by inoculating) test animals with the meat taken by him from cows with mild or moderate tuberculosis, and admitting his explanation of an affirmative result, sometimes seen when meat was being taken from cattle with advanced or generalized tubercle, we are prepared to believe with him that, if sufficient discrimination and care were exercised in taking meat from tuberculous cattle, a great deal of meat from them might, without danger, be consumed by the community. The practice of public abattoirs on the continent appears to be founded on the same belief.

Dr. Martin, having shown that tuberculous material may be thus distributed through the carcass of an animal, and regarding the

disease as being at its early stages a local disease, and its material as being in the first instance limited to the neighborhood of the place at which it had originally entered the body, is ready to formulate certain precautions that could be taken for reducing to a minimum, so far as present knowledge extends, the danger to human consumers of meat by their partaking of tuberculous meat. He would advocate, as a principle, that the operations of slaughter and dressing should be done under skilled supervision, with the object of securing the removal and destruction of every part of a carcass that contained any tubercle whatever, and also the destruction of the whole carcass in cases where the animal was found to have advanced or generalized tuberculosis. He indicates, for the assistance of any meat inspector, various evidences of the disease having reached that more serious stage. For the rest, Dr. Martin sees no objection to the sale of meat substance from carcasses which have shown only localized tuberculosis, and from which every particle of tubercle has been skilfully removed; provided always, that, in every subsequent process of preparing the meat for sale, due care be taken to guard the salable portions from contamination by tuberculous matter.

Reporting up n his twenty-one tuberculous cows from his present stand-point, Dr. Martin tells us that, if his ideal precautions had been in force, the meat of nine cows would have been condemned, and the meat of the other twelve might have been sold.

It is hardly necessary to point out that little evidence about the more serious degrees of tuberculosis in the animal would be discoverable in carcasses from which the organs had been removed; and that this is habitually the case with so-called "dead meat," whether English or foreign. Still, there are indications in such a carcass, to the eye of an experienced inspector, of the more dangerous forms of tuberculosis having existed in the animal.

Dr. Martin's suggestions are, in our judgment, based on well-ascertained pathological facts. We have no doubt that the supervision which he recommends would tend, in an important measure, to the security of the public. But we are well aware that the difficulties of such supervision are so great that many years must elapse before any measure of an effectual kind can be carried into practice.

In the mean time, we venture to express our confidence that the precise information which has now been gained as to the nature, extent and limitation of the risks which arise from the consuming of the meat of tuberculous animals may be of value to those who have concern with our meat supplies, in guiding them to the adoption of such precautions as may, under present conditions, lie within their power.

Some very careful experiments, to ascertain the influence of cooking upon meat, were made by the Royal Commission, and of it they have the following to say:—

In the boiling and roasting experiments, as ordinarily carried out in the kitchen, the temperature, however high it may be near the surface, seldom reaches 140° F. in the centre of a joint, except in the case of joints under six pounds in weight. Ordinary cooking is quite sufficient to destroy any smeared material that remains on the outer surface of the meat. *But it cannot be relied upon in the slightest degree to render inoculous the same smeared material when in the centre of a roll. . . .* Ordinary cooking, such as boiling, and more especially roasting, though sufficient to sterilize the surface and even the substance for a short distance from the surface of the joint, cannot be relied upon to sterilize tubercular material included in the centre of rolls of meat, especially when these are more than three or four pounds in weight. The least reliable method of cooking for this purpose is roasting before the fire, next comes roasting in an oven, and then boiling.

Regarding the dangers coming through the use of milk from diseased animals the evidence is much greater, and facts are much more easily procurable. In this connection we again quote from the report of the Royal British Commission:—

According to our experience, then, the condition required for insuring to the milk of tuberculous cows the ability to produce tuberculosis in the consumers of their milk is *tuberculous disease of the cow, affecting the udder*. It should be noted that this affection of the udder is not peculiar to tuberculosis in an advanced stage, but may be found also in mild cases.

Further, with reference to this disease, Dr. Martin writes: “The milk of cows with tuberculosis of the udder possesses a virulence which can only be described as extraordinary. All the animals inoculated showed tuberculosis in its most rapid form.” Dr. Woodhead, investigating, for his own purposes, the effects of unboiled milk, speaks in similar terms of this virulence of milk derived from tuberculous udders and inoculated into test animals. The two observers had occasion to use milk from a cow that had tuberculous disease in one-quarter only of the udder, and they found the milk from the other three-quarters to be perfectly harmless on inoculation; but the mixed milk taken from the four teats was to all appearance just as virulent as the milk from the diseased quarter. Butter, skim-milk,

buttermilk, obtained from the milk of a cow having tuberculous udder (by the usual processes, but with complete precautions against accidental contamination of articles used in the manufacture), all contained tuberculous matter actively injurious to test animals.

And not only this virulence, but the rapidity with which milk can obtain its harmful quality, attracted Dr. Woodhead's attention. He reports: "A most important point is that the spread of tubercle in the udder goes on with most alarming rapidity, — this I was able to observe in the cows constantly under observation; but I have also noticed on several occasions, during the interval between fortnightly inspections carried on along with a veterinary surgeon, that the disease has become distinctly developed. It may be, of course, that the early evidence has been overlooked at the previous inspection; but, whether this is the case or not, the spread of the disease was so rapid as to afford very good ground for alarm. The very absence of any definite sign in the earlier stage is one of the greatest dangers of this condition." And both Dr. Martin and Dr. Woodhead insist that no tuberculous animal of any kind should be allowed to remain in a dairy.

The withdrawal from dairies of every cow that had any disease whatever of her udder would form some approach to security against the serious danger incurred by man from the use of tuberculous milk, but it would not be an adequate security. The presence in a dairy of a tuberculous cow, as Drs. Martin and Woodhead have shown, is a decided source of danger to the public, especially having regard to what we have learned respecting the rapid development of tuberculosis in the udder, and the degree of danger to milk consumers incurred by the invasion of the udder in tuberculous cows.

It follows, from the observations here recorded, that it is of supreme importance to the consumers of milk that the existence of any tuberculous disease of the udder should be ascertained without delay. Now, there is no difficulty whatever about recognizing the presence of *some* abnormal condition in a cow's udder, and the presence of such condition — whatever it be — demands that the judgment of a responsible expert should forthwith be obtained about its nature, — unless, indeed, the owner prefers to slaughter the cow without delay. If the expert finds tubercle bacilli in the milk, the cow has dangerous tuberculosis of the udder. If he does not find them, he may apply the further test of inoculating some susceptible animals with the milk, and thereby learn the nature of the udder disease. By this test he will very rarely be misled. Obviously the cow must be in seclusion, and every particle of her milk must be treated as highly dangerous, during any delay that can be permitted for diagnostic purposes, and until the disease has been proved not to be tuberculosis.

In considering this part of the report, one is at once struck with the hesitancy with which the commission recommend the use of milk from tuberculous cattle, even although the animals do not show apparent udder lesions; and the question for us at once arises, as to whether or not it is practicable, in dealing with this matter on so large a scale, to draw any line whatever as to the location of the disease; that is to say, even with this testimony in view, is it not far better and safer to at once destroy the cow, when it has become clear beyond doubt that she is the victim of tuberculosis?

As to the influence of the cooking process upon tubercular milk we have the following, from the report of the Royal Commission:—

Sterilization towards tubercle can be effected by heating the milk in a water bath, continuing the process until the temperature has risen from 176° F. to 198° F.,—a result which in most cases requires each several quart of milk to be in the water bath for some half hour.

Dr. Woodhead has not wholly demonstrated to our satisfaction the innocence of tuberculous milk treated in this manner; he tells us of pigs succumbing to tuberculosis after feeding with tuberculous milk heated to 176° F. for ten minutes, without giving adequate data about the action or inaction of the milk after longer exposure to this temperature; and his experience of the higher temperature is derived from guinea-pigs only, not from pigs; though, as he has shown, guinea-pigs do not supply such good evidence as pigs about the influence of heat upon tuberculous matter in use as food.

In speaking further of these experiments made by Dr. Woodhead, the Royal Commission say:—

Nor, if we regarded the described method as certain in its efficiency, should we hesitate to refer to any such “sterilization” the simple expedient of putting every suspected milk over the fire and taking it off when it boils.

A very interesting statement of this report is as follows:—

In the course of Dr. Woodhead's observations on the degrees of heat wanted to destroy the operation of tuberculous matter in milk,

he noted the effects upon tuberculous material resulting from temperatures insufficient for its actual destruction. He could, by the operation of certain lower temperatures, obtain from "the most deadly tuberculous material" contained in milk a weaker sort of tuberculous matter, so tardy in its operation on test animals as to simulate the slower forms of consumption seen in the human subject; or, when used to feed pigs, — animals having some specialties of throat structure like that of man, — gave rise to chronic enlargements of the throat glands, resembling the scrofulous glands so common in children. These observations are of much interest to us, not least because they suggest the possibility of widely prevalent forms of human tuberculosis owning an origin in milk.

In the eighth annual report of the Vermont Agricultural Experiment Station, recently published, upon page 54 we find the following: —

It is obvious that direct experiment on man with tuberculous material from the lower animals is out of the question. There are on record, however, a number of cases of accidental infection of human beings by the products of tuberculous cattle. There is reason to believe that countless thousands of deaths have occurred due to this source of infection, which have not been thus ascribed and of which no record has been made. Children are more likely to be infected than adults, owing to their tissues being less resistant, and because their chief food is milk. It should not be inferred, however, that disease and death of necessity follow the consumption of tuberculous meat or milk.

Following this will be found, upon pages 54, 55, 56 and 57 of the same report, a minute relation of a large number of cases, in which it seems clear that tuberculosis has been contracted by mankind from using as food the milk and meat coming from diseased animals.

USE OF TUBERCULIN.

It is generally agreed, as will be seen by the statements of leading authorities already quoted, that tuberculosis exists in a very large degree among neat stock; that the existence of such disease in these animals is a menace to a greater or less extent to the human race, through the danger of the transmission of the disease by the consumption of the meat and milk of such animals. And the important question is, What steps can be

taken to remove or lessen the danger of the transmission of this disease through the medium of milk and meat?

Of course the danger from this source can be removed by ceasing to use the milk and meat product of such animals; but such a step is utterly impossible, as this forms such a large proportion of the food of the human race. If this product must continue to be used, the question would arise, Can it be so purified as to remove or destroy the contagious principle contained in it, or can steps be taken to prevent such product containing such contagious principle? To remove the contagious principle from the milk or meat before consumption is, as a whole, impracticable, as has already been shown in other portions of this report. Sterilization of milk as ordinarily conducted, and the cooking of beef in the manner that it is ordinarily done, are not sufficient to destroy the germ, although they may to a greater or less extent lessen the danger from this source. Inasmuch as it is impossible to know without special experimentation whether the milk or beef in each particular case contains the contagious principle, such a system, to be at all adequate, would require the sterilization of all of this product; there is no practical means of accomplishing this, even if it would result in the destruction of the germ, for the reason that the public at large, not realizing the importance of the work, would not take the necessary steps.

In the case of milk, the Royal Commission were of the opinion that nothing short of boiling would destroy the contagious principle; and it is a well-known fact that in boiling milk its constituents are so thoroughly changed that it is not as useful as a food, especially for infants, as that which has not been subjected to this great degree of heat. As a public sanitary measure, therefore, any system looking to the sterilization of the milk product, as a whole, would fall short of accomplishing the desired result. We must, therefore, either eliminate from the milk product that which is diseased, and destroy it, or we must see that the source from which the milk is derived is free from disease. It is impracticable, as a public sanitary measure, to eliminate the diseased milk and meat by means of any systematic examination of those products, as distinguished from the animal from which it is derived. The bacilli are so minute, and often widely scattered, that, even if these products could be

submitted to microscopic examination, it would not result in the detection in all cases of the presence of the germ. The only other method of detecting the germ is by the inoculation of the lower animals, such as guinea-pigs, with the suspected meat or milk; but this is impracticable, for the reason that, before the result can be obtained, the meat or milk has long since ceased to be wholesome. We must, therefore, if any steps are to be taken, endeavor to prevent the contagious principle entering the meat or milk consumed by the public through the purification of it at the source of supply.

The milk and meat supply of this State comes to us from two sources,—that derived from animals located within the Commonwealth and that derived from animals without its borders. The commission has no statistics at its command from which it is able to determine the relative proportion of the product from these two sources. So far as the meat product is concerned, in the opinion of this commission and generally of those who have given the matter a special study, while the meat is a source of danger, it is not as important a source as the milk.

In the case of meat, a large proportion of that which comes from without the State comes from large slaughtering establishments which are under the supervision of the inspectors who work under the authority of the Bureau of Animal Industry of the United States Department of Agriculture,* and, so far as it is derived from within this State, it is made subject to examination by inspectors appointed by cities and towns; so that, regarding the product coming from our own licensed slaughter houses, it may be fairly well relied upon as being free from tuberculous taint.

It should be stated that slaughter houses still exist, in portions of the Commonwealth, which have failed to obtain the

* In this connection, a remark made by the Secretary of Agriculture, in his recent report to the President of the United States, is not without value for us. He says: "Meat and animal inspection must become of great sanitary value to consumers at home and to interstate and foreign commerce, provided State and municipal authorities intelligently and diligently co-operate with those of the national government. If such co-operation fails, then the people of the great killing centres become the consumers of all rejected animals and meats. The protection of domestic health will be much improved when each purchaser of meats demands and insists upon that which has been governmentally inspected and certified."

licenses provided by law, where this business is being conducted and the product disposed of in the market without being inspected. This evil is one that will become less and finally be corrected under the operation of the present law.

It is further possible that a certain small proportion of tuberculous meat may find its way into the market by reason of the animals not being inspected at the time of slaughter, because the owner had received a certificate of soundness of such animal, based upon physical examination, within six months prior to the slaughter; and, finally, in addition to this, there is undoubtedly a small amount of tuberculous meat now finding its way into our markets that comes from animals which have been killed just without our borders in the neighboring States.

The milk now being sold in Massachusetts is derived from home herds and from herds which are maintained outside the limits of the State, the product of which is regularly marketed in Massachusetts. Inasmuch as it is impracticable to see that the milk supply itself is pure except by purifying the animals from which it is derived, it follows that there is no practicable means whereby this State can assure the consumers that milk coming from without its limits is free from the contagious principle by any prescribed system of examination relating to the cows from which it is derived, because the Commonwealth has no jurisdiction over those animals. The only practicable method of overcoming this difficulty is to provide, in some form, that milk shall not be delivered in this State except that coming from animals which have been properly shown to be free from disease.

On Nov. 20, 1894, the Board, in its circular letter of that date, which will be found printed on page 186 of the report of that year, made the following declarations:—

First.—That tuberculin is a reliable agent for determining the presence of tuberculosis in cattle.

Second.—That tuberculin, properly prepared and carefully handled, can have no injurious effect upon healthy animals.

Third.—That it is the only known means whereby a positive diagnosis can be made in the earlier stages of the disease.

This declaration was based upon the experience which members of the commission had had up to that time, covering

many hundreds of tests. Since Nov. 20, 1894, this Board has made 26,958 tests, and, as a result, it is prepared to reaffirm every word and line contained in that declaration.

We have already shown in detail, in other portions of this report, the results obtained by the commission from the use of tuberculin the present year. This experience shows that it is a remarkably accurate agent when properly applied under well-known necessary conditions. There is no other known means of diagnosing bovine tuberculosis except what is known as the physical examination. Such an examination is utterly unreliable, and has been discarded by this commission as an ultimate test, as it has by all other commissions and scientific men working in this direction throughout the known world. The experience of the commission for the past year has shown that physical examination would have failed to detect the presence of the disease in the vast majority of the animals tested upon voluntary request; and, on the other hand, tuberculin showed that the disease was not present in more than 55½ per cent. of the animals which had been quarantined as suspicious upon a physical examination by the local inspectors. Such is the opinion of this Board, based upon its experience.

That a similar result has been reached by many others working in the same direction and with the same agent, the following extracts will show.

Resolution passed by the Association of Cattle Commissions of the New England States, July 25:—

As a body, we heartily endorse and recommend the use of tuberculin as being the only reliable agent now known for the detection of tuberculosis in cattle. We also further believe that no harm whatever comes from its use in animals that are free from tuberculosis. No physical examination should be regarded as being reliable unless it has been accompanied by a properly made test with tuberculin. We further believe that no test should be made by other than practised competent persons, who will carefully follow all the known requirements for obtaining correct results.

At the annual meeting of the State Board of Agriculture, held at Dalton in December, the following recommendations were made:—

First.—That, subsequent to June 1, 1896, the use of tuberculin as a diagnostic agent shall be applied to all herds in which one or more tuberculous animals have been found.

Second.—All owners of herds in which one or more tuberculous animals have been found shall be required to make such reasonable changes in their stables and stable management as shall seem necessary to secure to their cattle the conditions known to be essential to health.

Third.—Full compensation for an animal or animals found to be tuberculous upon any inspection subsequent to the first shall be allowed only when it shall appear that the owner has faithfully endeavored to carry out the changes which he has been desired to make.

In 1894 the State of New York appointed a special commission to investigate tuberculosis in cattle in that State, which commission made a report in the latter part of January, 1895, containing several recommendations as to the best method to be pursued in the eradication of that disease, all of which are based upon the tuberculin test.

In a report made by that commission, on Oct. 29, 1895, the following paragraph occurs:—

The efficacy of tuberculin as a diagnostic agent is of incalculable benefit, although, if followed without due caution, in some cases it will lead to error. By the use of this agent some animals advanced in the disease fail to show any reaction, and in other cases animals not as extensively affected will show higher reaction. In the examinations thus far made not an error has occurred, as proven by the autopsies.

There can be no doubt that the systematic inspection of milch cows and the killing of cattle undoubtedly affected will prevent a large loss to the dairymen and lead to a great saving of infant life.

Bulletin No. 29 of the Pennsylvania State College Experiment Station, issued in October, 1895, says:—

All those who have used tuberculin in the United States for the diagnosis of bovine tuberculosis, and have published their work, including Drs. Law, Curtice, Conrow, Faust, Russell, Rice, Schroder, Niles, Eves and Pearson, have expressed themselves as extremely well pleased with the results with this agent.

Remarkable to note, the occasional and scattered opposition to the use of tuberculin comes from those who have never employed it for the diagnosis in cattle.

In the Year Book of the United States Department of Agriculture for 1894, on page 324, occurs the following :—

The disease in the early stages can be detected only with the aid of tuberculin. In the advanced stages most careful observers will probably recognize it, or at least suspect it, without the use of tuberculin. Tuberculin, therefore, has become indispensable in giving the owner an idea of the inroads the disease is making in his herd, and in distinguishing the infected from the non-infected. Tuberculin reveals to us all stages, from the earliest, most insignificant changes, when the animal is outwardly entirely well, to the gravest and most dangerous types of the disease. Tuberculin does not, as a rule, discriminate between these cases. Hence those who use it as a guide must not be disappointed when, after having killed the suspected ones, they find that many are in the earlier stages of the malady. Tuberculin, moreover, is not infallible. A small percentage of cases of disease is not revealed by it. On the other hand, a sound animal now and then gives the reaction for tuberculosis. These lapses must be borne in mind in using tuberculin. In spite of them, however, tuberculin must be considered as of great value in revealing tuberculosis not recognizable by any other means during life.

In the report on tuberculosis in cattle, presented to the city council of Minneapolis, Minn., H. N. Avery, A.M., M.D., commissioner of health, states as follows :—

During the past few years the investigation of the prevalence of tuberculosis among dairy herds has been extensively carried on both in foreign countries and in the United States. In this country the work has been in charge of the Bureau of Animal Industry, the cattle commissions, boards of health and experiment stations of the several States. The results of such investigations have demonstrated the prevalence of the disease to an extent which is positively alarming in many herds, and its existence in a greater or less degree in a large proportion of the herds which have been examined. The diagnosis of this disease by ordinary methods being in many cases impossible, a more trustworthy method has been sought and found. In 1880, Koch, who discovered the bacillus or germ of the disease, described the preparation and uses of a fluid which he had prepared, and which has since come to be known as Koch's lymph or tuberculin. Tuberculin consists of the concentrated, sterilized liquids in which the bacillus tuberculosis has been grown. It contains no living bacilli, but it does contain the chief poisons which are produced

within the tuberculous body, and which bring about all the diseased processes in such body. The diagnostic value of tuberculin depends upon the fact that, when injected into the body of a tuberculous animal, it increases the activity of the disease process in the tubercular tissues and thus affects the whole body, producing a reaction or rise of temperature in a marked degree. When injected into a healthy animal no reaction occurs, no decided rise of temperature results, and no effect is produced upon the health of the animal, either immediately or subsequently, although with tuberculous animals it in many cases accelerates the progress of the disease. The tuberculin test has been applied in many thousand cases, and the more extensively it has been used the more thoroughly it is appreciated for its diagnostic value and for the reliability of its indications when intelligently applied by skilful veterinarians.

The results of the use of tuberculin as a test in dairy herds in and about Minneapolis have been such as to demonstrate its existence in such a proportion of cattle examined as to justify the continuance of such investigation in a thorough manner, with a view to the eradication of the disease.

In pursuance of this recommendation, an ordinance was passed by the Board of Health of the city of Minneapolis, under the provisions of the State law, forbidding the offering for sale of milk except from herds that are certified by an inspector to be free from disease. This ordinance provides:—

It shall be the duty of the commissioner of health to cause to be made by the veterinarian of the department of health, or under his direction and supervision, such an examination of each and every animal producing milk for sale or consumption within the city of Minneapolis, and belonging to or controlled by such applicant, for the presence or absence of tuberculosis and other contagious and infectious diseases as shall be prescribed by the department of health; and the branding or tagging of each and every animal thus examined in such a manner as may be directed by the department of health, —

and the department of health requires that such inspection shall be based upon the tuberculin test, being the only reliable test.

On September 12 the United States Veterinary Medical Association, assembled at Des Moines, Ia., passed the following resolutions, which were adopted by a unanimous vote:—

Whereas, Tuberculosis is an infectious disease, dangerous alike to

man and the lower animals; *and whereas*, scientific experimentation has demonstrated the possibility of transmitting the disease through the dairy and other animal products from tuberculous animals; *and whereas*, the extensive use of tuberculin as a diagnostic agent has thoroughly demonstrated its high value for that purpose, further be it

Resolved, That, in the judgment of the United States Veterinary Medical Association, it is the duty of sanitary boards and other health officers to employ all practical methods calculated to restrict this disease.

Resolved, That we regard the tuberculin test as the only reliable means now known to the scientific world for detecting obscure cases of tuberculosis in the living subject, and that it is a reliable test when performed under proper and well-known necessary conditions.

It is further *Resolved*, That reliance upon the physical examination of animals for the existence of tuberculosis is unwise and unwarranted in the present day.

Prof. H. D. Gill, veterinarian to the New York City Board of Health, in a recent paper read before the section of public health of the New York Academy of Medicine, November 8, stated, among other things, as follows:—

The identity of bovine and human tuberculosis being placed beyond doubt by the numerous examples of contagion, by a similarity in the anatomical alterations of these diseases, and by the existence in both of the same specific bacillus, the question of consumption of the milk of tuberculous animals becomes of the greatest importance from the stand point of public hygiene. How widespread it is can be learned, in my opinion, only when every animal has been subjected to the tuberculin test; and until such investigation has been made, the only safeguard for the milk supply of New York is limitation to that coming from herds which have been so tested. Too great emphasis can hardly be laid on the clearly demonstrated fact that tuberculosis may exist in cattle when they present absolutely no clinical symptoms of disease. Danger is not to be especially looked for when an animal presents the classical symptoms of emaciation, cough, etc. It is when the animal is in good flesh, has a healthy skin, and nevertheless has one or more foci of disease.

Turning now from the opinions as expressed by boards and authorities throughout the United States, some of which have been above quoted, we find that the same experience has been met abroad. At the last European Veterinary Congress, as-

sembled at Berne, Switzerland, in September, the following resolutions were passed:—

Tuberculin is a very valuable diagnostic agent, and can yield the greatest assistance in combating tuberculosis. There is no reason for objecting to its general application on the ground that it may aggravate pre-existing tuberculous lesions.

The congress expresses the desire that governments shall order the employment of tuberculin in herds in which the existence of tuberculosis has been established.

Tuberculin is a reliable diagnostic agent.

There need be no fear that tuberculin, properly used, will cause generalization of pre-existing disease.

All tuberculous herds should be tested with tuberculin, and the tuberculous and healthy animals separated.

The last International Congress of Hygiene, held in September, at Budapest, after hearing the report of the committee appointed two years before for the consideration of this question, reached the following conclusion, which was given out by the presiding officer:—

The committee are agreed that tuberculin is a very valuable assistant in the discovery of tuberculosis. The occasional failures in diagnosis for which it is responsible are without practical significance.

In Dieckerhoff's "*Lehrbuch der speciellen Pathologie und Therapie für Thierärzte*," published in 1894, and generally recognized as the most reliable work on veterinary practice, this statement occurs:—

It is for the owner's interest to have his herd tested with tuberculin, in order to discover the suspicious animals, so that they may be separated and placed in another stable, and slaughtered as soon as possible.

A law is now pending in France which will make the use of tuberculin compulsory in all herds in which tuberculosis has been discovered.

Under the provisions of this law, every beast presenting clinical signs of disease is to be slaughtered; any suspicious beast showing tuberculosis is to be subjected to the tuberculin test, and slaughtered if diseased; all cattle that have cohabited with an animal found to be tuberculous are to be subjected to

the tuberculin test; one-half to one-fourth compensation is to be paid, according to circumstances.

In presenting this bill, the minister explains that he desires to encourage the owners of cattle to assist the authorities in attempting to suppress a disease dangerous to human life, and that the differences as to compensation are arranged accordingly.

The city of Rome is putting in force regulations in relation to the health of milch cows and other animals which supply milk to its residents, which provide, in substance, that —

All milch cows and other animals which supply milk in the suburbs and Agro Romano will be subjected to a rigorous examination by the municipal surgeons. To this purpose notice of every animal introduced into the Commune must be given to the health authorities before the milk can be sold, and it is then placed under the inspection of the veterinary surgeon.

When the animal is healthy and capable of furnishing good milk, it will be marked in the horn and a special license given to the owner. These animals will be inspected every year, in the months of April, May and June, and also on any other occasion that the authorities may deem necessary. The cow suspected of tuberculosis will be treated with tuberculin at the expense of the owners, and those diseased will be slaughtered.

These regulations have recently been extended to embrace all the surrounding country, which will prevent the owners in Rome proper from sending tuberculous cows into the adjoining country, where they might continue to be the source of milk supply for the city.

Numerous other quotations might be inserted of the doings of public authorities and the opinions of experts upon the matter of the reliability of tuberculin; but a sufficient number have been cited to show that everywhere it is the consensus of opinion that in tuberculin a reliable diagnostic agent for the detection of tuberculosis has been found, and that with its discovery an entirely new phase has been put upon the problem of the eradication of this disease in cattle, and with it the elimination of this source of danger to the public health.

We assume, therefore, that tuberculin is a reliable agent for the detection of bovine tuberculosis.

The consideration of the question as to whether or not the use of tuberculin accelerates the disease already existing in the

animal is of no importance, because, under the law of this State and of every other State where any action is being taken, the authorities destroy the animal where the disease is found, and this is the object primarily sought to be accomplished by the application of the test. Unless this policy is pursued, the disease can never be eradicated.

This being so, no evil can arise under any aspect in applying the tuberculin test to animals which are in fact diseased. Inasmuch as authorities are united in the opinion that the presence of the disease cannot be detected until after the tuberculin is applied, in the vast majority of cases, we are necessarily not in position to apply the tuberculin only to diseased animals; and it must necessarily follow that in the adoption of this test a certain proportion of healthy animals must be subjected to the influence of tuberculin, in endeavoring to ascertain by its use which of them are diseased.

The only material question in this connection, therefore, is, does the use of tuberculin in any way injure healthy animals? That tuberculin cannot produce the disease of tuberculosis is a matter of absolute certainty. This was thoroughly discussed in the report of this commission last year.* As bearing upon this matter, we desire to call the attention of your honorable body to the fact that in the following cases herds which have been once tested and the premises properly disinfected by the members of this Board have been retested after periods as shown in the table, and found to be entirely free from tuberculosis, which shows not only that the test is reliable, but also that it did not produce the disease.

Number.	FIRST TEST.			SECOND TEST.		
	Date.	Number Animals.	Number Tuberculous.	Date.	Number Animals.	Number Tuberculous.
1	Feb. 4, 1894,	120	18	July 12, 1895,	80	-
2	Oct. 1, 1894,	80	36	Sept. 19, 1895,	80	-
3	April 13, 1894,	27	16	April 15, 1895,	9	-
4	June 21, 1894,	23	6	Dec. 27, 1895,	23	-
5	May 16, 1895,	51	7	Dec. 27, 1895,	53	-

* Nor has it ever been shown that the use of tuberculin has been productive of any other ill results in animals to which it has been administered; while, on the other hand, authority after authority have declared that in their experience it has never produced ill results when administered to other than tuberculous animals.

The commission has endeavored during the past year to carefully observe the effect of the use of this diagnostic agent upon the healthy animals, and no case has been brought to the attention of the commission in which any injury could be directly traced to the use of tuberculin. Perhaps no better evidence can be obtained of the general opinion that tuberculin produces no injurious effect upon healthy animals than the fact that in the open markets of this Commonwealth animals which have been so tested sell more readily in competition with untested animals, and at, if anything, better prices.

Further, but few thoroughbred or pedigree animals can be sold to-day unless such animals are accompanied by a certificate of having successfully passed the tuberculin test; and finally, as is shown by the recent experience of this commission, the greatly increased and increasing number of applications for the test, coming from all parts of the State.

SANITATION.

The matter of the sanitary condition of stables and premises is an important one in connection with the consideration of the general health of animals, and is particularly so in all questions concerning the eradication of tuberculous disease. The question of whether an animal will become affected with tuberculosis depends upon two conditions: first, the presence of the germ; second, a receptive condition of the individual which will enable any germs which may obtain lodgement to develop and multiply and thus produce the disease.

In order to suppress tuberculosis, it is necessary not only to destroy the diseased animals, but to remove other sources of contagion by means of cleansing and disinfecting stables; and also to see that the animals are kept under such proper sanitary conditions as will render them practically immune to contagion which may be presented to them.

In view of the great prevalence of this disease throughout the neat stock of the Commonwealth, the commission feels that the first important step is to destroy the main sources of contagion,—that is, the diseased animals,—and that, upon this being done, the premises should be disinfected and otherwise put into proper sanitary condition. It is useless to prescribe

sanitary regulations and go through the expensive process of properly cleansing and disinfecting stables until all diseased animals within the enclosure have been picked out and removed. Therefore the matter of sanitation becomes especially important in cases where herds have been examined by the Board and the disease removed.

In all cases where entire herds have been examined by this commission upon voluntary request, the owner has agreed that he "will observe the sanitary regulations prescribed by the Board of Cattle Commissioners, and will not introduce into such herd any animals without having them first subjected to the tuberculin test." After the examination of the herd has been completed, and the diseased animals removed, the Board has given directions for the proper disinfection of the premises, as follows: all animals are to be removed from the barn; all woodwork with which they have been in direct or indirect contact is to be thoroughly scraped; all floors, ceilings and walls to be sprinkled with water and thoroughly swept; after this has been done, live steam, or, failing that, boiling water, is to be applied freely to all parts with which the animals have been in contact; this having been done and allowed to dry, the premises are to be again scraped and swept; the buildings are then to be closed as tightly as possible, and subjected to the effects of chlorine gas. This gas can be easily made by treating chloride of lime with crude sulphuric acid diluted with three or four parts of water, in sufficient quantities to thoroughly fill all parts of the building, which is then left closed for twelve hours. Following this, all the woodwork is to be treated with whitewash to which has been added a solution of bi-chloride of mercury, one part of mercury to one thousand parts of water, the application to be made by means of a force pump. When this is dry the premises are ready to be used again. It is desirable that this whitewash should be repeated at convenient intervals, for two or three times.

It is the intention of the Board to continue the work of the examination of stables, such as has already been inaugurated, and to furnish to parties interested instructions in regard to what sanitary conditions are deemed advisable by the Board, and as to how these ends may be accomplished.

To this end owners of stock are advised that any building

used as a stable for cows should be properly lighted and ventilated; should have a tight floor and roof; good drainage connecting wherever possible with a practicable sewer pipe and supply of pure water and not less than one thousand cubic feet of air space for each animal; that manure should not be allowed to accumulate in the neighborhood; that yards surrounding buildings where cows are kept should be well drained, free from standing water and filth; that barns should be swept once at least each day, and kept as clean as possible, and the floors should be sprinkled before being swept; that no hogs or manure should be kept in the cellars under cow stables; that animals kept for the production of milk should not be fed upon swill of any kind.

The commission would also advise that, as far as practicable, consumptive people should not be allowed to come in any way in contact with neat cattle; although in this connection it should be stated that modern investigation tends more and more to show that, while the danger of the transmission of tuberculosis from the lower animals to man is great, the danger of transmission in the other direction is not so great as has been supposed.

Laboratory experiments indicate that the bacillus from the human subject is much less virulent than that from the bovine. Comparative microscopical examinations show clearly the rugged, hardy appearance of the bovine, as compared with the slender, bent bacillus of man; and the growth of the cultures together in the same media have demonstrated that the bacillus of the bovine kills out the bacillus from the human subject.

In 1864 Villimin, and in 1869 Klebs, produced tuberculosis in calves by injecting tuberculous masses from man into their peritoneal cavity; but these experiments are directly offset by those conducted by Prof. Theobald Smith, who has recently informed us that with the pure culture of the bacilli, procured from the animal pet of a consumptive man, he had been unable, by injection into the peritoneal cavity of bovines, to reproduce the disease; and, while tuberculisoidin and other antitoxines have marked beneficial effect upon cases of the disease, which resulted from the inoculation of the bacilli from man, it had no such salutary effect when injected into animals which had derived the disease from the bovine virus. This was confirmed by experiments on three guinea-pigs which had been inoculated

with bovine virus, and were afterward treated with one of these preparations furnished by Dr. E. Klebs. After the disease was well advanced the treatment had not the slightest effect upon its progress.

The same results were obtained by Czaplewski and Roloff in 1892 (Berlin, Klein Wochenschrift, No. 29).

While these experiments may not be conclusive, they all point in the same direction.

Under the provisions of section 1 of the law of 1895 it was provided that inspectors “shall make, from time to time, inspections of all other domestic animals within the limits of their several cities and towns, whenever they have knowledge or reason to suspect that such animals are affected with or have been exposed to any contagious disease; and they shall immediately inspect any and all domestic animals, and any barn, stable or premises where any such animals are kept, whenever directed so to do by the Board of Cattle Commissioners or any of its members.”

No special directions under this section have been given to the inspectors, for the reason that so little is known as to the conditions of these stables; and the method of properly inspecting them is so difficult that the preliminary work, at all events, must be done by special inspectors properly qualified for that purpose; and therefore the Board has undertaken to make a special study of the sanitary conditions of the stables, after which it will be able to issue general instructions to the inspectors, which will be productive of great good in this direction. The agent appointed by the Board inspected twenty-five stables picked out in different parts of the State, and the result of this inspection will be seen in the following table: —

Summary of Laboratory Reports on Hygienic Conditions of Barns inspected during Month of October, 1895.

Number.	Town.	Date.	Time.	Brewery Grain.	Hogs kept in Cellar.	Number of Animals.	Cubic Feet of Air Space per Head.	Carbonic Acid in 10,000 Parts of Air.	Condition of Air.	Number Bacteria in Ten Litres Air.	Condition of Water.
1,	Natick, .	Oct. 11,	A. M. 5.40	Used in part,	No,	3	933	Parts. 8	Fair, .	350	Good.
2,	Natick, .	Oct. 12,	4.30	None used, .	No,	15	307	10	Bad, .	-	Good.
3,	Southborough,	Oct. 15,	5.20	None used, .	No,	5	420	8	Fair, .	160	Good.
4,	Southborough,	Oct. 15,	4.10	None used, .	No,	60	320	12	Bad, .	500	Impure.
5,	Westborough,	Oct. 15,	5.00	None used, .	No,	15	303	9	Bad, .	230	Good.
6,	Westborough,	Oct. 15,	5.40	None used, .	No,	20	378	-	Fair, .	270	Good.
7,	Worcester, .	Oct. 22,	4.15	Is used, .	25 hogs,	30	426	12	Bad, .	170	Impure.
8,	Worcester, .	Oct. 22,	4.00	None used, .	No,	33	1,221	10	Bad, .	1,130	Fair.
9,	Worcester, .	Oct. 22,	6.30	None used, .	15 hogs,	40	300	7.5	Fair, .	-	Good.
10,	Worcester, .	Oct. 22,	5.45	None used, .	15 hogs,	25	512	8	Fair, .	400	Fair.
11,	Quincy, .	Oct. 26,	6.00	Is used, .	No,	9	522	8	Fair, .	170	Dangerous.
12,	Quincy, .	Oct. 26,	5.10	None used, .	No,	9	266	9	Bad, .	350	Good.
13,	South Natick,	Oct. 26,	4.30	None used, .	No,	19	-	11	Bad, .	490	Fair.
14,	Dover, .	Oct. 26,	5.45	None used, .	No,	6	-	14	Very bad, .	420	Good.

Summary of Laboratory Reports on Hygienic Conditions of Barns inspected during Month of November, 1895.

			A. M.						Parts.			
1,	Holliston,	Nov. 1,	4.30	No,	.	.	No,	7	330	12	Bad,	Poor.
2,	Holliston,	Nov. 1,	5.15	No,	.	.	Yes,	1	1,100	7½	Fair,	Good.
3,	Milford,	Nov. 1,	5.45	No,	.	.	Yes, 25,	23	311	7	Fair,	Fair.
4,	Waltham,	Nov. 15,	6.00	No,	.	.	No,	33	1,600	6	Good,	Poor.
5,	Waltham,	Nov. 15,	5.15	No,	.	.	—	12	420	9	Bad,	Fair.
6,	Burlington,	Nov. 19,	5.55	No,	.	.	No,	43	1,400	8	Fair,	Good.
7,	Woburn,	Nov. 19,	4.50	No,	.	.	No,	17	325	7	Fair,	Good.
8,	Weston,	Nov. 29,	6.00	No,	.	.	No,	12	875	7	Fair,	Poor.
9,	Wayland,	Nov. 29,	6.45	No,	.	.	No,	8	1,300	7	Fair,	Good.
10,	Coehituate,	Nov. 29,	6.40	Yes,	.	.	Yes, 10,	16	2,500	6	Good,	Good.
11,	Coehituate,	Nov. 29,	6.05	Yes,	.	.	No,	36	1,700	7	Fair,	Good.

FINANCE.

Prior to the passage of the law of 1894, the law under which this commission had been operating was so unsatisfactory that little could be done. With the passage of the law of 1894 the work became enormously increased. The appropriation for that year was \$35,000. Of this sum there had been expended prior to June 20, \$13,000, leaving a balance of \$22,000 on hand at the time when the law of 1894 was passed. Early in February, 1895, the Legislature appropriated \$50,000 for the immediate use of this commission, that the work might be continued until such time as final legislation could be obtained. Prior to the passage of the law of 1895, obligations had been contracted under the law of 1894 up to June 5, 1895, to the amount of \$91,876, leaving a balance unprovided for of \$19,876, which had to be taken from the appropriation of \$100,000 made under the law of 1895, which left a balance of only \$80,124 to be expended under the new act.

In regard to the item of \$19,876 in excess of the available appropriation of \$72,000, above referred to, the commission desires to state that under the law it is impossible at any given moment to know just what the obligations of the commission are, because the inspectors throughout the State, who are independent public officers, are, under the provisions of the law, taking steps which ultimately must create a liability on the part of the State calling for the action of this commission, involving additional expense; and, further, that the returns of expenses and numbers of claims come in frequently long after the time when the animal was killed, and the obligation is technically incorrect.

Of the \$91,876 expended under the law of 1894, \$44,376 was for administrative expenses; \$47,500 was returned directly to the owners of cattle destroyed as tuberculous, upon the basis of one-half sound value of animals destroyed, — an average price, therefore, of \$21 per head; so that the expense of examining all animals reported as being suspicious, conducting the examination of a large number of cattle every week at Brighton, as well as that inseparably connected with the inauguration of a new and very large plant, such as buying the necessary apparatus, fitting up quarantine stations, preparation of forms, print-

ing and payment of all other incidental expenses, was as \$44,376 is to \$47,500.

At the same time it should be remembered, in comparing this work with the work under the present law, that under the law of 1894 the owners of neat stock destroyed received one-half the sound value, whereas under the present law the full value was paid. The average value of animals paid under the law of 1895 has been \$35 per head. Had the same valuation been paid under 1894, the relation of administrative expense to the amount paid in compensation would have been in the proportion of \$44,376 to \$78,750.

It should also be remembered in this connection that up to June 30, or substantially during the greater portion of the period of the law of 1894, the State sustained the entire expense of examining neat cattle brought from without its border for the purpose of determining whether or not they were free from tuberculosis; whereas, under the regulations prescribed by this commission relating to interstate cattle, since July, 1895, substantially all neat stock brought within the borders of the Commonwealth now are accompanied by certificate of tuberculin test, which is furnished at the expense of the owner, and is signed by a veterinarian whose integrity and ability is vouched for by the Board of Cattle Commissioners of the State from which the animals were shipped, thus relieving Massachusetts of an immense burden of expense which was borne by it during the experimental work carried on at Brighton, Watertown and Somerville.

From June 5, 1895, to Nov. 25, 1895, the total amount expended by the commission against the available fund of \$80,124 has been \$75,600, of which the total administrative expense was \$16,100, and the amount paid to the owners of neat cattle destroyed as tuberculous, under the provisions of the act, \$59,500. This sum was paid for 1,732 animals destroyed, or an average price of about \$34.50 per head. These figures, therefore, show that the administrative expense was, as compared with the expense of compensation, as \$16,100 is to \$59,500. In other words, since June 5, 1895, the administrative expense has been twenty-seven per cent. and the expense for compensation of animals destroyed seventy-three per cent. It will thus be seen that, out of every dollar spent by this commission

since June 5, 1895, the farmers have received seventy-three cents.

It may be of interest to note the State tax paid by each city and town throughout the Commonwealth, and the amount paid out of the treasury of the Commonwealth to the owners of cattle within such city or town. These figures may be ascertained by consulting the following table : —

CITY OR TOWN.	Tax.	Cattle.	CITY OR TOWN.	Tax.	Cattle.
Abington, . .	\$1,500	—	Boxford, . .	\$375	\$86 25
Acton, . .	900	\$289 00	Boylston, . .	300	44 50
Acushnet, . .	375	20 00	Bradford, . .	1,650	50 00
Adams, . .	2,310	—	Braintree, . .	2,670	—
Agawam, . .	810	367 00	Brewster, . .	375	100 00
Alford, . .	135	—	Bridgewater, . .	1,515	548 68
Amesbury, . .	3,135	55 25	Brimfield, . .	255	31 00
Amherst, . .	1,905	779 50	Brockton, . .	12,930	616 75
Andover, . .	2,940	562 25	Brookfield, . .	900	182 75
Arlington, . .	4,830	151 50	Brookline, . .	35,685	804 50
Ashburnham, . .	645	220 75	Buckland, . .	360	141 50
Ashby, . .	315	1,053 45	Burlington, . .	300	702 00
Ashfield, . .	315	1,216 50	Cambridge, . .	46,800	60 00
Ashland, . .	735	806 92	Canton, . .	2,595	469 50
Athol, . .	2,265	—	Carlisle, . .	210	401 50
Attleborough, . .	2,760	22 00	Carver, . .	495	—
Auburn, . .	345	69 75	Charlemont, . .	240	32 50
Avon, . .	465	—	Charlton, . .	585	27 00
Ayer, . .	825	—	Chatham, . .	570	—
Barnstable, . .	2,310	45 00	Chelmsford, . .	1,245	1,264 00
Barre, . .	885	1,627 75	Chelsea, . .	13,545	21 50
Becket, . .	285	55 00	Cheshire, . .	450	625 00
Bedford, . .	585	—	Chester, . .	390	962 00
Belchertown, . .	340	321 50	Chesterfield, . .	180	206 50
Bellingham, . .	420	104 75	Chicopee, . .	4,980	—
Belmont, . .	2,265	97 75	Chilmark, . .	135	—
Berkley, . .	270	—	Clarksburg, . .	150	—
Berlin, . .	300	—	Clinton, . .	4,170	249 50
Bernardston, . .	255	—	Cohasset, . .	2,880	112 50
Beverly, . .	8,685	137 49	Colrain, . .	360	23 00
Billerica, . .	1,185	5,606 45	Concord, . .	2,520	364 25
Blandford, . .	270	54 00	Conway, . .	435	272 50
Bolton, . .	285	652 30	Cottage City, . .	640	—
Boston, . .	538,920	8,151 68	Cummington, . .	195	535 75
Bourne, . .	1,005	18 50	Dalton, . .	1,755	1,838 00
Boxborough, . .	135	95 25	Dana, . .	160	24 00

CITY OR TOWN.	Tax.	Cattle.	CITY OR TOWN.	Tax.	Cattle.
Danvers, . . .	\$2,700	-	Groveland, . . .	\$600	\$35 00
Dartmouth, . .	1,620	\$6 00	Hadley, . . .	630	291 25
Dedham, . . .	3,945	317 00	Halifax, . . .	165	-
Deerfield, . . .	990	134 75	Hamilton, . . .	645	-
Dennis, . . .	1,005	8 50	Hampden, . . .	340	116 75
Dighton, . . .	510	-	Hancock, . . .	210	28 00
Douglas, . . .	630	119 75	Hanover, . . .	870	15 50
Dover, . . .	385	225 50	Hanson, . . .	390	-
Dracut, . . .	1,005	496 00	Hardwick, . . .	930	397 23
Dudley, . . .	675	618 50	Harvard, . . .	615	830 75
Dunstable, . . .	180	1,185 50	Harwich, . . .	750	-
Duxbury, . . .	945	39 85	Hatfield, . . .	630	193 00
East Bridgewater,	990	48 75	Haverhill, . . .	12,630	1,114 02
East Longmeadow,	420	612 75	Hawley, . . .	105	-
Eastham, . . .	180	-	Heath, . . .	120	-
Easthampton, . .	1,500	252 75	Hingham, . . .	2,750	90 00
Easton, . . .	3,045	14 75	Hinsdale, . . .	465	-
Edgartown, . . .	450	29 00	Holbrook, . . .	810	-
Egremont, . . .	285	-	Holden, . . .	720	-
Enfield, . . .	480	36 25	Holland, . . .	66	-
Erving, . . .	240	165 50	Holliston, . . .	1,035	328 50
Essex, . . .	600	-	Holyoke, . . .	16,320	711 00
Everett, . . .	7,380	-	Hopedale, . . .	1,560	-
Fairhaven, . . .	1,185	41 50	Hopkinton, . . .	1,260	245 25
Fall River, . . .	37,320	201 00	Hubbardston, . .	420	350 75
Falmouth, . . .	3,675	300 50	Hudson, . . .	1,785	154 75
Fitchburg, . . .	11,880	215 00	Hull, . . .	1,560	21 75
Florida, . . .	105	-	Huntington, . . .	330	-
Foxborough, . . .	1,020	130 25	Hyde Park, . . .	1,585	-
Framingham, . . .	5,595	2,295 00	Ipswich, . . .	1,770	514 25
Franklin, . . .	1,800	1,448 40	Kingston, . . .	1,005	-
Freetown, . . .	540	59 25	Lakeville, . . .	345	-
Gardner, . . .	3,045	3,687 28	Lancaster, . . .	1,785	64 00
Gay Head, . . .	15	-	Lanesborough, . .	315	12 00
Georgetown, . . .	645	-	Lawrence, . . .	19,920	64 50
Gill, . . .	285	428 53	Lee, . . .	110	1,215 25
Gloucester, . . .	9,750	-	Leicester, . . .	1,410	78 00
Goshen, . . .	90	38 00	Lenox, . . .	1,785	413 78
Gosnold, . . .	120	22 50	Leominster, . . .	3,420	1,203 50
Grafton, . . .	1,485	243 00	Leverett, . . .	180	-
Granby, . . .	285	96 00	Lexington, . . .	2,445	960 25
Granville, . . .	225	10 25	Leyden, . . .	105	57 00
Great Barrington,	2,205	46 00	Lincoln, . . .	1,380	147 00
Greenfield, . . .	3,195	119 75	Littleton, . . .	525	1,898 44
Greenwich, . . .	165	10 50	Longmeadow, . . .	375	224 25
Groton, . . .	1,753	637 50	Lowell, . . .	42,000	329 25

CITY OR TOWN.	Tax.	Cattle.	CITY OR TOWN.	Tax.	Cattle.
Ludlow, . . .	\$645	\$466 00	Newton, . . .	\$27,495	\$777 00
Lunenburg, . .	480	117 25	Norfolk, . . .	315	-
Lynn, . . .	29,715	1,083 42	North Adams, . .	4,695	-
Lynnfield, . . .	360	-	North Andover, . .	2,025	697 75
Malden, . . .	14,835	212 50	No. Attleborough, .	2,400	72 75
Manchester, . .	4,260	5 00	North Brookfield, .	1,200	390 25
Mansfield, . . .	1,095	60 50	North Reading, . .	315	329 75
Marblehead, . .	3,465	-	Northampton, . .	6,270	322 50
Marion, . . .	495	26 50	Northborough, . .	765	3,086 45
Marlborough, . .	4,965	1,720 99	Northbridge, . . .	2,175	330 06
Marshfield, . . .	810	295 50	Northfield, . . .	585	446 66
Mashpee, . . .	105	-	Norton, . . .	495	305 00
Mattapoisett, . .	900	64 33	Norwell, . . .	660	1,250 00
Maynard, . . .	1,260	35 25	Norwood, . . .	1,645	893 75
Medfield, . . .	855	-	Oakham, . . .	210	-
Medford, . . .	9,345	185 00	Orange, . . .	2,415	169 75
Medway, . . .	795	128 50	Orleans, . . .	520	-
Melrose, . . .	5,895	-	Otis, . . .	135	-
Mendon, . . .	330	167 00	Oxford, . . .	795	-
Merrimac, . . .	810	-	Palmer, . . .	1,740	118 50
Methuen, . . .	2,115	98 00	Paxton, . . .	165	-
Middleborough, .	2,550	10 00	Peabody, . . .	4,693	233 50
Middlefield, . .	150	-	Pelham, . . .	105	12 50
Middletown, . .	315	-	Pembroke, . . .	405	39 25
Milford, . . .	3,315	47 50	Pepperell, . . .	1,230	1,197 25
Millbury, . . .	1,440	79 00	Peru, . . .	75	-
Millis, . . .	510	157 50	Petersham, . . .	390	71 75
Milton, . . .	11,775	150 00	Phillipston, . . .	180	-
Monroe, . . .	90	-	Pittsfield, . . .	8,070	818 45
Monson, . . .	1,200	606 75	Plainfield, . . .	105	-
Montague, . . .	2,180	-	Plymouth, . . .	3,960	-
Monterey, . . .	150	-	Plympton, . . .	195	-
Montgomery, . .	90	-	Prescott, . . .	105	58 25
Mt. Washington, .	45	-	Princeton, . . .	495	906 84
Nahant, . . .	3,465	-	Provincetown, . .	1,365	-
Nantucket, . . .	1,850	183 25	Quincy, . . .	10,095	360 00
Natick, . . .	3,420	529 00	Randolph, . . .	1,410	17 50
Needham, . . .	1,695	131 25	Raynham, . . .	540	148 00
New Ashford, . .	45	-	Reading, . . .	2,100	30 00
New Bedford, . .	30,915	31 00	Rehoboth, . . .	450	95 75
New Braintree, . .	255	666 50	Revere, . . .	3,930	-
New Marlborough, .	345	185 00	Richmond, . . .	210	-
New Salem, . .	195	51 00	Rochester, . . .	330	-
Newbury, . . .	645	-	Rockland, . . .	1,860	68 00
Newburyport, . .	6,735	-	Rockport, . . .	1,590	205 59

CITY OR TOWN.	Tax.	Cattle.	CITY OR TOWN.	Tax.	Cattle.
Rowe, . . .	\$150	-	Topsfield, . . .	\$525	\$392 50
Rowley, . . .	420	-	Townsend, . . .	720	946 75
Royalston, . . .	375	\$25 00	Truro, . . .	225	15 00
Russell, . . .	300	52 50	Tyngsborough, . . .	240	272 00
Rutland, . . .	315	-	Tyringham, . . .	135	-
Salem, . . .	17,550	25 00	Upton, . . .	630	-
Salisbury, . . .	390	-	Uxbridge, . . .	1,365	-
Sandisfield, . . .	210	31 50	Wakefield, . . .	3,510	171 50
Sandwich, . . .	585	32 25	Wales, . . .	180	-
Saugus, . . .	1,770	-	Walpole, . . .	1,245	183 70
Savoy, . . .	105	25 00	Waltham, . . .	11,190	2,420 50
Scituate, . . .	1,230	-	Ware, . . .	2,655	474 25
Seekonk, . . .	525	-	Wareham, . . .	1,260	-
Sharon, . . .	975	37 00	Warren, . . .	1,680	287 25
Sheffield, . . .	540	1,030 50	Warwick, . . .	195	30 25
Shelburne, . . .	555	1,111 00	Washington, . . .	120	77 25
Sherborn, . . .	495	1,355 00	Watertown, . . .	4,890	1,333 00
Shirley, . . .	450	65 00	Wayland, . . .	945	823 50
Shrewsbury, . . .	600	-	Webster, . . .	2,310	45 00
Shutesbury, . . .	105	-	Wellesley, . . .	3,990	1,110 50
Somerset, . . .	645	48 56	Wellfleet, . . .	465	102 50
Somerville, . . .	25,890	30 00	Wendell, . . .	150	-
South Hadley, . . .	1,410	54 00	Wenham, . . .	405	-
Southampton, . . .	300	29 25	West Boylston, . . .	825	170 20
Southborough, . . .	975	4,875 75	West Bridgewater, . . .	600	355 75
Southbridge, . . .	2,445	231 00	West Brookfield, . . .	510	-
Southwick, . . .	330	37 50	West Newbury, . . .	600	-
Spencer, . . .	2,505	14 25	West Springfield, . . .	2,475	219 00
Springfield, . . .	35,203	575 00	West Stockbridge, . . .	345	-
Sterling, . . .	525	447 40	West Tisbury, . . .	240	11 00
Stockbridge, . . .	1,860	80 00	Westborough, . . .	1,580	2,331 25
Stoneham, . . .	2,430	91 75	Westfield, . . .	4,755	37 50
Stoughton, . . .	1,815	95 50	Westford, . . .	825	719 25
Stowe, . . .	390	590 25	Westhampton, . . .	150	245 75
Sturbridge, . . .	585	90 75	Westminster, . . .	465	676 74
Sudbury, . . .	705	82 50	Weston, . . .	2,145	-
Sunderland, . . .	235	718 83	Westport, . . .	945	26 50
Sutton, . . .	810	270 85	Weymouth, . . .	4,095	-
Swampscott, . . .	3,390	-	Whately, . . .	285	338 25
Swansey, . . .	525	-	Whitman, . . .	2,190	182 75
Taunton, . . .	11,970	60 00	Wilbraham, . . .	510	184 00
Templeton, . . .	840	391 25	Williamsburg, . . .	570	221 00
Tewksbury, . . .	900	720 75	Williamstown, . . .	1,515	-
Tisbury, . . .	495	-	Wilmington, . . .	540	210 50
Tolland, . . .	90	-	Winchendon, . . .	1,410	51 25

CITY OR TOWN.	Tax.	Cattle.	CITY OR TOWN.	Tax.	Cattle.
Winchester, .	\$3,885	\$20 00	Worthington, .	\$195	\$20 00
Windsor, . .	120	31 00	Wrentham, . .	915	279 25
Winthrop, . .	2,610	-	Yarmouth, . .	1,260	-
Woburn, . . .	5,820	357 50			
Worcester, . .	54,435	1,033 30	Total, . . .	-	\$111,561 50*

OPINIONS OF PERSONS THROUGHOUT THE COMMONWEALTH WHO
HAVE HAD ANIMALS TESTED WITH TUBERCULIN BY THIS
BOARD.

Desiring to ascertain as fully as possible the experience and opinions of those whose animals had been subjected to the tuberculin test, the Board issued the following circular letter, a copy of which was sent to the address of every person whose animals had been tested prior to that date.

The total number of replies coming from this circular has been two hundred and forty-three, of which forty-five only are unfavorable to the test. All are given herewith. The name and address of the writer is given in every case in which it has been received.

Some of the replies have been given as directly answering the numbered questions, and others in letter form, without regard to the numbers of the inquiries. To save repetition here, the answers received are given following the number of the question which is answered. The letters are given together, and will be found following the more direct replies.

The unfavorable replies have been separated from the others, and are given first. It is a notable fact that, of the thirty-four classified unfavorable opinions, all but six are from persons whose animals showed no tuberculosis upon application of the test, and who, therefore, it is to be presumed, have had no opportunity of witnessing the great precision with which the test does its work. It is also to be noticed that almost all of the more usual calamities attending the keeping of milch cows have

* It will be noticed that these figures show a sum which is larger by some \$4,000 than the sum of the amounts returned in this report as having been paid to the farmers for cattle destroyed. This is due to the fact that a number of the warrants for animals already condemned and destroyed, amounting to about \$4,000, had not been sent to the auditor at the time when the latter figures were made up.

been ascribed to the bad effects of tuberculin, chief among them being the shrinkage of the product in milk and the occurrences of abortion, with its attending evils. That tuberculin is, probably, not properly chargeable with these unfortunate happenings, is well shown by the replies and letters received from the great majority of these correspondents themselves, to be found among those that are classed here as not unfavorable.

Among these latter it will be noticed that there are thirty-eight replies that are non-committal as to the opinion of the writers upon the value of the tuberculin test; thirty-two of them come from cases in which no tuberculosis was found in the examined herds, twenty-eight being from the systematic work in the Cape district, where, as is shown in another part of this report, an exceedingly small amount of tuberculosis exists among the neat stock.

[COPY OF CIRCULAR LETTER.]

52 VILLAGE STREET, BOSTON, Oct. 28, 1895.

DEAR SIR:—We are desirous of learning as fully and accurately as possible as to the general health and thrift of your cattle which were tested with tuberculin. I would therefore consider it a favor if you would write me concerning the following points:—

1. When was your herd tested?
2. Of how many animals did it then consist?
3. How many were condemned as tuberculous?
4. How many of them were milch cows?
5. What was the comparative milk product before and after the test?
6. What has been their general health since?
7. How many animals have you lost since the test?
8. What disease caused their death?
9. How many animals had you lost in the same length of time prior to the use of tuberculin?
10. What is your opinion of tuberculin from your experience with it in your own herd?

An early reply will oblige yours very truly,

FREDERICK H. OSGOOD, *Chairman.*

Unfavorable Replies.

— — — Adams: —

1. Nov. 9, 1895. 2. Twenty-two. 3. Not any. 4. Fifteen. 5. sixty quarts before; thirty quarts after. 6. I can't see any difference. 7. Not any. 8. — 9. Not any. 10. My opinion is it is an injury to cows that is giving milk.

J. A. GRIFFITH, Ashley Falls: —

1. July 2, 1895. 2. Twenty-one. 3. Ten. 4. Nineteen. 5. No change. 6. Good. 7. None. 8. — 9. None. 10. In some cases not reliable.

WALTER CHANNING, M.D., Brookline: —

1. — 2. Ten. 3. One. 4. Seven. 5. No difference. 6. Good. 7. None. 8. — 9. None. 10. I regret to say I have not as yet any data for an opinion about tuberculin in general. From the experience of my own cows I cannot see the value of it.

ARTHUR T. LYMAN, Boston: —

1. About February, 1895. 2. About twenty. 3. Five. 4. All. 5. My farmer says that the product was less, and that he thinks the productive capacity has continued less. Three cows also lost calves. 6. Good. 7. None. 8. — 9. None. 10. I don't know of any other cause why the milk should have been reduced. I only gave his opinion. There may have been other reasons.

F. MAHEW, Chilmark: —

1. January, 1895. 2. Four. 3. None. 4. Two. 5. Decrease after. 6. Good. 7. None. 8. — 9. None. 10. To me the effect of tuberculin was not noticeable, but the fright and worry that the herd experienced I consider injurious, and certainly caused a decrease of milk.

S. S. YOUNG, Chatham: —

1. I think in March, 1895. 2. Six. 3. None. 4. All. 5. Less since the test. 6. Same as before. 7. None. 8. — 9. — 10. Not very good.

M. NORTON, Chilmark: —

1. Last winter. 2. Six. 3. None. 4. One. 5. Less after. 6. Good. 7. None. 8. — 9. None. 10. Humbug.

DANIEL W. WEST, Chilmark: —

1. Winter. 2. Three. 3. None. 4. One. 5. No great. 6. Good. 7. None. 8. — 9. I have kept cattle fourteen years, and lost none. 10. My cow did not do as well that was near calving this summer, as usual as regards milk.

JOSEPH SWARTZ, Edgartown:—

1. January.
2. Nine
3. None.
4. Three.
5. About the same.
6. Good
7. None.
8. —
9. None.
10. One of my cows had a dead calf a few days after the tuberculin test.

OWEN W. NORTON, Edgartown:—

1. January last.
2. Four.
3. Not any.
4. Three.
5. Not as good.
6. Not as healthy.
7. Not any.
8. —
9. Not any.
10. Injurious

C. WORTHINGTON PEASE, Edgartown:—

1. Last December or January.
2. Three.
3. None.
4. Three.
5. —
6. We lost three calves at the time of test. One entirely dried up, poorly all winter.
7. None.
8. —
9. None.
10. My opinion is not favorable. The best cow dried up in her milk in a few days, and the two that lost their calves, milk good for nothing for one month, one dried up entirely, been of no use all the year; they were both all right before the test.

ALLEN MAYHEW, Edgartown:—

1. January, 1895.
2. Three.
3. None.
4. Two.
5. Perceived no difference.
6. —
7. None.
8. —
9. None.
10. It made no difference in the health of the two cows in milk, but the third cow lost her calf within three days after the test. Calf born too soon by two weeks, and the cow feverish and sick for two weeks after, and didn't give the usual amount of milk for some weeks.

CYRUS VINCENT, Edgartown:—

1. In January.
2. Four.
3. None.
4. One.
5. No difference.
6. The calf of one cow born dead. My yearling failed at once after the test, just saved it from dying.
7. None.
8. —
9. None.
10. I have a bad opinion from my experience.

J. T. CARPENTER, Foxborough:—

1. About May 1, 1895.
2. Five.
3. One springing bag about to calve.
4. All, nearly dry, about to calve.
5. Dry or nearly dry.
6. First class.
7. None.
8. —
9. Lost one cow about eight years ago, took cold after calving.
10. I have never had a cow affected, and believe the test a humbug.

A. J. GILBERT, Hadley:—

1. February or March.
2. Eight.
3. One very slightly affected.
4. Milked six.
5. Fell off after the test.
6. Good.
7. None.
8. —
9. None.
10. Sure it hastens the disease if present ever so slightly, and sometimes the test is very unsatisfactory.

— — — Leyden:—

1. June, 1895.
2. Four.
3. Not any.
4. Three.
5. Same.
6. Well.
7. Not any.
8. —
9. Not any.
10. Humbug.

S. B. MUDGE, Lynn: —

1. Last January. 2. Ten. 3. Six. 4. Four. 5. Gave very little for a week after. 6. As well as before. 7. None. 8. — 9. None. 10. Fraud.

A. R. LUCE, North Tisbury: —

1. One year ago. 2. Eleven. 3. None. 4. Two. 5. No difference. 6. Good as it always was. 7. None. 8. — 9. None. 10. Humbug, one big humbug.

A. B. NICKERSON, Northwest Chatham: —

1. Wednesday afternoon, March 20, 1895. 2. One. 3. None. 4. One. 5. Ten quarts before and eight after. 6. Fairly good 7. None. 8. — 9. None. 10. I think it has caused more cows to go dry and done more harm to milk cows than any one thing in existence.

— — Northborough: —

1. March, 1895. 2. Ten. 3. Two. 4. All. 5. No difference. 6. Good. 7. None. 8. — 9. None. 10. Do not believe in it.

T. H. HURD, Orleans: —

1. March, 1895. 2. Two. 3. None. 4. Two. 5. No difference. 6. Good. 7. None. 8. — 9. None. 10. Of no use.

F. A. COLLINS, Orleans: —

1. In March. 2. Two. 3. None. 4. Two. 5. The same. 6. Good. 7. None. 8. — 9. None. 10. Amounted to nothing.

JOHN KENRICH, South Orleans: —

1. In early spring of present year. 2. One. 3. None. 4. One. 5. After test shrunk slightly. 6. Good. 7. None. 8. — 9. None. 10. I was at the South when tuberculin was introduced. Had I been at home I should have objected to its application.

— — Salem: —

1. About a year ago. 2. Ten. 3. None. 4. All. 5. They fell off. 6. Good, but two dried up. 7. One, in calving. 8. Calving. 9. None. 10. They were injured by it, as it made them feverish and gargety.

EPHRAIM MAYHEW, South Quibnocket: —

1. February, 1895. 2. Seven. 3. None. 4. Four. 5. Very little difference. The milk was not used for two weeks afterward. 6. Good. 7. None. 8. — 9. None. 10. I have a poor opinion of it.

— — — West Tisbury : —

1. February, probably.
2. One.
3. Not any.
4. One.
5. No perceptible change.
6. Good.
7. None.
8. They didn't die.
9. None.
10. Arrant nonsense.

BENJAMIN F. MAYHEW, West Tisbury : —

1. Last winter, January or February, 1895.
2. One cow.
3. None.
4. One.
5. About two quarts less after the test.
6. During July and August at different times the milk seemed frothy, and after letting it set twenty-four hours it would sort of curdle and very ropy. All right since.
7. None.
8. —
9. None.
10. To make business for men.

FREEMAN HANCOCK, West Tisbury : —

1. January, 1895.
2. Four.
3. None.
4. One.
5. The same.
6. One not good.
7. None.
8. —
9. None
10. I have had trouble with the milk from two cows being so bad it made the whole family sick, never had anything like it before. If it was caused by tuberculin my opinion is very bad of it; if not I have nothing to say against it.

J. B. MAYHEW, West Tisbury : —

1. January, 1895.
2. Four.
3. None.
4. Three.
5. One-sixth less since tested.
6. Very good.
7. None.
8. —
9. —
10. I believe it to be injurious.

— — — West Tisbury : —

1. Some time during the last winter.
2. Six.
3. None.
4. Four.
5. Less after the test.
6. Good.
7. None.
8. —
9. —
10. Humbug.

— — — West Tisbury : —

1. January, 1895.
2. Five.
3. None.
4. Two.
5. Same.
6. Not as good
7. None.
8. —
9. None.
10. Rather not have it used.

WILLIAM C. ALLEN, West Tisbury : —

1. Last January.
2. Ten head.
3. None.
4. Five.
5. No great difference.
6. Their health has not been as good.
7. None.
8. —
9. None.
10. A great disadvantage.

EDMUND HOBART : —

1. In February and also in June.
2. Twenty-four.
3. None.
4. Ten.
5. I saw no difference.
6. Good.
7. None.
8. —
9. One.
10. I have seen no bad effects, but I think we cannot always rely on it as a test.

R. S. FREEMAN : —

1. March.
2. One.
3. Not any.
4. One.
5. The same.
6. Good.
7. Not any.
8. —
9. Not any.
10. I do not think very highly of it.

EDGARTOWN, NOV. 11, 1895.

To the Cattle Commissioners of Massachusetts.

GENTLEMEN:—Your inquiries of October 28 at hand and in answer I would say:—

My herd was tested about the first of January, 1895. It consisted of twelve, ten in milk, one dry and one yearling. None were condemned. There was a decrease in the milk of about twenty per cent. Several of them were sick for two or three months. Poor appetite, loss of flesh and decrease of milk. After that they gained up, and for the rest of the season I noticed nothing unusual except the inability to get some of them with calf. The consequence is I have more farrow cows than is profitable for my business. I have lost no cows from any cause for at least ten years, and have had no sick ones except for the three months above mentioned. I consider the test an injury.

Respectfully,

WM. F. JERNEGAN.

EDGARTOWN, Dec. 3, 1895.

To F. H. OSGOOD, Esq., *Chairman Board of Cattle Commissioners, No. 52 Village Street, Boston, Mass.*

DEAR SIR:—Yours of October 28 at hand. Please excuse delay in answering, as I have been away from home.

As near as I can remember, my herd was tested the last of February, and consisted of six animals; none of them were condemned. Think but one gave milk at that time, about two quarts per day before and also after the test. As to their health it has always been good before test and since. I have lost none since the test nor prior to it by any disease.

And now to answer the tenth and last question: I think it about equal to robbery for the Legislature to appropriate money from the State treasury to test cattle here on the islands, if not all through the Commonwealth.

Very truly yours,

THOMAS F. SMITH.

LENEX, MASS., NOV. 22, 1895.

State Board Cattle Commissioners.

DEAR SIR:—My father's herd of eighteen cows and one bull was tested during winter of 1894 and 1895. It may have been December, 1894, or January, 1895. Five cows were quarantined, but only three killed, as the other two were retested and appeared sound, as in my opinion the ones killed were, practically.

The milk product and general health of the herd appears to be about the same now as before testing. Have lost no animal either before or since the test. Am not prepared to condemn tuberculin, but am not at all satisfied with results shown in testing our herd.

Yours very truly,

WILLIAM D. CURTIS,
Executor Estate of Wm. O. Curtis.

LITTLETON, NOV. 20, 1895.

State Board Cattle Commissioners.

DEAR SIRs:—In reply to yours of October 23, which I received yesterday, I would say that my herd has never been tested with tuberculin. About one year ago I had two quarantined in course of six weeks. They were tested in about a month; they were killed on the place, and were bad. Sept. 3, 1895, I had eight quarantined. On the 11th they were tested by Dr. Rose; five were condemned and sent to Watertown on the 18th. The other three released on the same day. Of those released I am sure two of them were more diseased than any taken. I have since sold them. I do not think the test works in bad cases. As to the quantity of milk before and after the test, I am in no condition to judge, as I was graining my cows when quarantined, but took it away after, as I did not care to make a large quantity of milk to turn down the scuttle. I have lost one cow within a year, of spinal trouble.

Yours truly,

C. P. PICKARD.

LEE, MASS., NOV. 25, 1895.

Board of Cattle Commissioners, Boston, Mass.

GENTLEMEN:—Yours at hand, and in reply would say we had twenty-nine cows tested with tuberculin, February, 1895. Four were condemned as tuberculous, one marked for retest. This one afterward died, probably from long and close confinement. All were milch cows; saw no difference in the flow of milk before and after the test. The only bad effects we saw from the use of tuberculin was we had two abortions very soon after the test, something that had not occurred before for about two years.

Yours truly,

P. M. SHAYLOR & SON.

NORTH READING, MASS., NOV. 21, 1895.

Mr. FREDERICK OSGOOD.

SIR:—Your late letter of inquiry received. In regard to when our herd was tested, I would say it was last March, and then consisted of four cows and a calf and all were condemned. All the cows were milch cows. As to amount of milk after the test would say much less milk was the output after the test than before. All were killed, and so that ends the question as to health, and of course none were lost since the test from that herd. As to what caused their death, the butcher said they had a slight touch of tuberculosis; but a neighbor standing by said that he wished he could have some of the beef taken to his house to eat. They were all in excellent condition, as autopsy proved. We lost one cow during same time before. The animal came in the spring before and did not do well, never fully recovering from it, became run down and then we killed it. This animal came from Wilmington to our herd, and after we had killed it the inspectors opened it and found it to be tuberculous. Now the inspectors had previously given us two papers at two separate times, asserting that in their opinion our animals were all right. Now we waited over

seven months for our pay for our cattle, and then received not half of their value, reckoning milking qualities and nothing for keeping them for three weeks after they were condemned. Now my opinion of tuberculin is just this; that it should never be used as a diagnostic, and I learn that the carbolic acid which it contains is capable of producing consumption when used on the human family by injection.

Most respectfully,

GEORGE D. FAIRBANKS,
for JONES E. FAIRBANKS.

SQUIBNOCKET, Nov. 30, 1895.

DEAR SIR:—My cow was tested last winter, pronounced all right. Don't remember what day or month. I never had but one cow, and she has been all right ever since. One thing I am dissatisfied, my cow does not give near so much milk as she generally does. She usually gave a large quantity of milk.

FRANKLIN TILTON.

VINEYARD HAVEN, Nov. 12, 1895.

Board of Cattle Commissioners.

GENTLEMEN:—In reply to your favor of October 23, I would say:—My cows were tested about the 5th of last February. There were two of them. None were condemned. Both of them were milch cows. One calved at 8.30 A.M. and was tested at 9 P.M. The other was within three months of calving. The former shrunk in milk, and never went up again. She is now going dry three months earlier than before. The latter I see no great difference in. As to their general health I see no difference. Have lost none since testing. Prior to the use of tuberculin had lost none. My opinion so far as my cows are concerned is that they were just as well off without the test, one of them certain, I believe would have been much better for milk without it.

Yours truly,

OWEN H. TILTON.

VINEYARD HAVEN, Nov. 27, 1895.

MR. OSGOOD:—In reply will try to answer you as correct as I can. My cattle were tested about the first of February. I had four cows, three giving milk, none condemned. They have given less milk since tested, from one to two quarts a day. As for health, it did not improve them, and it made one lose flesh and has not looked so well since. I have lost no cattle since or before the test. I do not think much of it; am of the opinion that some wanted a job. It may be all right for cattle shipped here from other countries. I don't believe that there is a man that is going to sell milk from a sick cow, and he will know whether anything is the matter with her or not before any one else knows.

Yours truly,

P. C. BODFISH.

WASHINGTON, NOV. 25, 1895.

DEAR SIR:—I received your letter asking me to inform you about my cattle. My herd was tested about the first of February. It consisted of eighteen cows, all milch cows. There was two of them condemned. I could see no difference in the milk product before or since the test. I have not lost any since the test, or had any sick ones, but shortly before the test I lost one. I supposed she died of old age. She was about seventeen years old. My opinion of tuberculin is that it does not amount to much. One of the two cows that was condemned was perfectly sound; but I don't see as it has done my herd any harm, so far.

Yours respectfully,

JOHN EICHELSEER.

WEST TISBURY, MASS., NOV. 19, 1895.

Massachusetts Cattle Commission.

GENTLEMEN:—Yours received and in reply I will say I am fishing most all the time. I farm it but little. My cattle was tested Jan. 14, 1895. I had four, two cows and two yearlings, one cow I was milking at the time. She was giving about four quarts of milk at the test, and about the same after. The other cow that Dennen made me kill the next day, or he was going to pump in his tuberculin, he would not let me keep her any longer. I was trying to fat her at the time. The yearlings have done well. The cow I was milking I will say she is all right, but I don't want any more tested. If I can't tell a sick cow I will stop keeping any.

My opinion of tuberculin is as far as my cattle goes, is a humbug on this island.

Yours respectfully,

GEORGE W. MANTER.

All Other Replies.

F. W. WRIGHT, Chairman Overseers of Poor, Ashby:—

1. October 9 and 10.
2. Thirteen.
3. Three.
4. Ten.
5. After a few days the milk product was the same as before the test.
6. Good
7. Not any.
9. Not any.
10. I should say it was very reliable.

J. B. LINDSEY, Ph.D., Amherst:—

1. About Aug. 1, 1895.
2. Seven.
3. One.
4. All.
5. Not noticeably different.
6. Good
7. None.
9. None.
10. A valuable diagnostic for detecting tuberculosis, and the only certain one.

LEONARD C. BRUCE, Ashby:—

1. Sept 12, 1895.
2. Seven.
3. Three.
4. Two.
5. There was no great difference.
6. Good.
7. Not any.
9. I have not lost one by sickness in twenty years.
10. My cattle did not show any bad effects from the use of tuberculin. The cattle eat as well, and give as much milk as they did before being tested, and I think it is all right.

A. E. HOBART, North Amherst: —

1. Sept. 27, 1895. 2. Seventeen. 3. One. 4. All of them. 5. No different.
6. Good. 7. None. 8. — 9. None. 10. Am well pleased with it.

L. W. MAYO, Ashby: —

1. September, 1895. 2. Five. 3. Five. 4. Five. 5. No reply.
6. — 7. None. 8. — 9. One. 10. All right if properly handled.

O. A. BATTLES, Ashby: —

1. Oct. 9, 1895. 2. Seven. 3. One. 4. Four. 5. About the same.
6. Good. 7. None. 8. — 9. None. 10. It does no harm.

C. J. FALES, Adams: —

1. Nov. 8, 1895. 2. Twenty-three. 3. One. 4. Twenty. 5. About the same.
6. Good. 7. None. 8. — 9. None. 10. I think it a bad disease and ought to be stopped if possible.

J. HOOPER LEACH, Bridgewater: —

1. — 2. Eight. 3. Three. 4. Seven. 5. More. 6. Good.
7. — 8. — 9. Two died. 10. It tells the story.

PHILO LEACH, Bridgewater: —

1. — 2. Nineteen. 3. Three. 4. Fifteen. 5. More. 6. Good.
7. — 8. — 9. Two died. 10. Invaluable and harmless.

HENRY S. RUSSELL, Boston: —

1. Last winter. 2. Forty-nine examined. Five tested, 3. None. 4. About 32.
5. Same. 6. Good. 7. Two by natural death. 8. Congestion of lungs and heart in one case. One unknown. 9. About the same.
10. It did no harm.

E. B. RICHARDS, Becket: —

1. Oct. 3, 1895. 2. Seven. 3. None. 4. All; only one giving milk at the time.
5. About the same. 6. Good. 7. None. 8. —
9. None. 10. All right so far.

J. L. SMITH, Barre, Mass.: —

1. August, 1895. 2. Thirty. 3. Four. 4. Twenty-one. 5. No increase or decrease in the amount of milk.
6. Good. 7. None. 8. — 9. None. 10. It does no harm to a healthy cow.

W. GRIGGS, Brookline: —

1. February and March. 2. About twenty. 3. Twelve. 4. All. 5. Didn't see any change.
6. Good. 7. None. 8. — 9. Two; one from milk fever, the other from a nail in the heart. 10. It condemned many that might recover.

F. C. EDES, Bolton: —

1. September, 1895. 2. Six. 3. Five. 4. Six. 5. No difference.
6. — 7. — 8. — 9. Nine. 10. My opinion is it is the only agent whereby we can determine whether an animal has tuberculosis or not. This same herd has been in my barn for two years or more, and been inspected by the local inspector, and a clean bill of health given of the whole herd.

— — Baldwinsville: —

1. June, 1895. 2. Fifteen. 3. One. 4. Fifteen. 5. Same. 6. Good.
7. None. 8. — 9. None. 10. None formed.

N. E. IZELL, Chester: —

1. September 26. 2. Nine. 3. Not any. 4. All but one. 5. About the same.
6. Good, as far as I see. 7. Not any. 8. — 9. Not any. 10. Think it is a good thing; would not buy one without it was tested.

T. K. STEARNS, Chatham: —

1. March. 2. One. 3. None. 4. Just before calving. 5. —
6. Good. 7. None. 8. — 9. None. 10. I did not see that it made any difference.

W. F. CARD, Cheshire: —

1. Nov. 7 and 8, 1895. 2. Twenty-four. 3. Ten. 4. Seven. 5. After forty-eight hours as good as before the test. I think the shrinkage was on account of their not having food and water.
6. Good. 7. Not any. 8. — 9. Two with tuberculosis. 10. I have a good opinion of tuberculin; consider it no detriment or damage to stock whatever.

A. H. STREETER, Cummington: —

1. June 25. 2. Twenty-eight tested and two veal calves not tested.
- * 3. Ten. 4. Seven condemned; six not condemned. 5. The same.
6. Good. 7. None. 8. — 9. None. 10. That it is a safe and valuable product in detecting tuberculosis in cattle.

ISAAC B. YOUNG, Chatham: —

1. I think on the 23d of March, 1895. 2. Eight. 3. None. 4. Eight.
5. I could see no difference. 6. Good. 7. None. 8. — 9. Never lost any. 10. —

M. A. SNOW, Chester: —

1. September 26. 2. Fifteen head. 3. None. 4. Fourteen. 5. About the same.
6. Good. 7. None. 8. — 9. None. 10. I think tuberculin will not injure cattle unless they are ailing before it is used.

WM. STEVENS, Chester:—

1. September 26. 2. Two. 3. None. 4. One. 5. About the same.
6. Good. 7. None. 8. — 9. None. 10. My experience has been so little I could hardly give an opinion.

J. D. STALL, Manager Wm. Whiting farm, Chesterfield:—

1. October 24. 2. Nine. 3. Four. 4. Eight. 5. The same after one day.
6. Good. 7. None. 8. — 9. None. 10. Good.

E. CROSBY, Chatham:—

1. February. 2. One. 3. None. 4. One. 5. About the same.
6. Good. 7. None. 8. — 9. — 10. Good.

C. S. HOLMES, Chester:—

1. Oct. 3 and 4, 1895. 2. Five cows. 3. None. 4. Five. 5. The same.
6. Good. 7. None. 8. — 9. None. 10. See no change.

G. PAYNE, Chatham:—

1. May, 1895. 2. One. 3. None. 4. One. 5. Good. 6. Good.
7. None. 8. — 9. None. 10. —

B. N. TILTON, Chilmark:—

1. Within a year. 2. Three. 3. Not any. 4. All of them. 5. Don't know.
6. Good. 7. Not any, sold one. 8. — 9. Not any. 10. I cannot see that it affected them either way.

TERRY BROS., Chester:—

1. Oct. 3 and 4, 1895. 2. Eight. 3. Three. 4. Eight. 5. Good before, and as good after being tested, after four days.
6. Good. 7. None. 8. — 9. None. 10. I think that it does no harm.

— — — Chester:—

1. October 4. 2. Six. 3. Three. 4. Two, one heifer. 5. Did not shrink very much.
6. Good. 7. None. 8. — 9. Not any. 10. Do not see any injury from it.

— — — Chester:—

1. August 22. 2. Sixteen. 3. One. 4. Nine. 5. About the same.
6. Good. 7. Not any. 8. — 9. Not any. 10. Good.

GEO. F. BOSWORTH, Cuttyhunk:—

1. In February. 2. Four. 3. None. 4. Two. 5. Same, no difference.
6. Good. 7. None. 8. — 9. None. 10. Not experience enough to form an opinion.

CHARLES INGELL, Chester:—

1. August 22, September 26, October 3. 2. Twenty-two. 3. Two. 4. Seventeen. 5. About the same. 6. Good. 7. Not any. 8. —
9. Not any. 10. I think it is a good thing, and don't think it hurts the cows any; think all in the State ought to be tested.

JOHN B. RIPLEY, Chester:—

1. August 8. 2. Forty-one. 3. Eight. 4. Three. 5. No material change. 6. Perfect. 7. Not any. 8. — 9. One. 10. I believe it to be entirely harmless and practically sure in its results.

H. W. HAMMETT, Chilmark:—

1. January, 1895. 2. Two. 3. None. 4. One. 5. No difference. 6. Good. 7. None. 8. — 9. None. 10. Saw no difference before nor since the test.

CHARLES SENTER, Chester:—

1. September 26. 2. Six. 3. None. 4. Six. 5. No difference. 6. Good. 7. Not any. 8. — 9. — 10. I cannot see any difference in them.

FRANKLIN B. HAMMETT, Chilmark:—

1. In January, 1895. 2. Two. 3. None. 4. One. 5. The same. 6. Good. 7. Not any. 8. — 9. None. 10. Good.

LEONARD DOANE, Chatham:—

1. Early in the Spring. 2. Five. 3. None. 4. Four. 5. No difference. 6. No difference as far as I know. 7. None. 8. —
9. None. 10. I don't think it hurts them any.

EDWARD KENDRICK, Jr.:—

1. March, 1895. 2. Two. 3. None. 4. Two. 5. Same. 6. Good. 7. None. 8. — 9. None. 10. Its use should be continued, as I think it shows when cattle are diseased and thereby protects the public against disease.

SULLIVAN ROGERS, Chatham:—

1. Early last spring. 2. Two. 3. None. 4. Two. 5. No difference. 6. Good. 7. None. 8. — 9. None. 10. —

ALBERT E. WRIGHT, Chester:—

1. October 4. 2. Seven. 3. Not any. 4. Five. 5. Not any difference after twenty-four hours. 6. Good. 7. Not any. 8. —
9. Not any. 10. I don't know.

FREDERICK S. ALLEN, Cuttyhunk:—

1. About eleven months ago. 2. Two cows. 3. None. 4. Both. 5. About the same. 6. Good. 7. None. 8. — 9. None. 10. I have none; that is, I am not qualified to say.

O. E. LANDERS, Danvers : —

1. December, 1895, and one cow tested January, 1895. 2. Thirteen. 3. One, and proved to have the same. 4. All that were tested were milch cows. 5. Normal. 6. Good. 7. None. 8. — 9. None. 10. My opinion I will reserve.

J. N. PAYNE, Dunstable : —

1. September, 1895. 2. Thirteen. 3. One. 4. Thirteen. 5. The same. 6. Good as before. 7. None. 8. — 9. None 10. Think it has done my herd no harm. They have done well since they were tested. One cow dropped her calf soon after being tested. She has never done better or given more milk than now.

F. W. PARKHURST, Dunstable : —

1. October 10, or 17. 2. Nine. 3. Three. 4. Nine. 5. The same. 6. The same. 7. None. 8. — 9. None. 10. I cannot see as it does any harm.

JONAS E. KENDALL, Dunstable : —

1. About the 13th of September. 2. Fourteen. 3. Thirteen. 4. All. 5. Cannot say. 6. — 7. None. 8. — 9. None, 10. I can see no injurious effects from its use.

ALLEN COLBURN, Dedham : —

1. Oct. 14, 1895. 2. Seventeen tested at that time. 3. Three. 4. All. 5. Could see no difference. 6. Good. 7. None. 8. — 9. None. 10. Do not think it hurts them.

— — — Dunstable : —

1. Oct. 10 or 12, 1895. 2. Six. 3. One. 4. Five. 5. Very good. 6. All right. 7. None. 8. — 9. Have lost none for ten years. 10. Don't see any difference; don't think it does any harm.

J. P. MACK, Farmer for Hon. Byron Weston, Dalton : —

1. The last of July, 1895. 2. Twenty-five. 3. Three. 4. Not any. 5. About the same. 6. Good. 7. Not any. 8. — 9. Two. 10. —

GEORGE A. BROWN, Dalton : —

1. Sept. 28 1895. 2. Nine 3. None. 4. Six. 5. Good. 6. Good. 7. None. 8. — 9. None. 10. I do not see any ill effect from it.

J. P. UPTON, Dunstable : —

1. Sept. 29, 1895. 2. Twenty-three. 3. Six. 4. Twenty-three. 5. The same. 6. Good as before. 7. None. 8. — 9. None. 10. That it has done my herd no harm.

JOHN J. BARTON, Dalton : —

1. The last of September.
2. Thirteen.
3. Eleven.
4. All gave milk but one.
5. Did not milk but one after the test.
6. Have nothing but calf and one bull; killed the bull; calf all right.
7. None.
8. —
9. Lost one about a year ago.
10. I did not know how mine turned out; they took them to Brighton to kill, but have killed seventy-two head of others since, and all proved to have it.

ROLAND MAYO, East Orleans : —

1. Last March.
2. Four.
3. Not any.
4. Three.
5. No difference.
6. Good
7. None.
8. —
9. Never lost one.
10. Don't know anything about it.

ALLEN NORTON, Edgartown : —

1. In January.
2. One cow.
3. Condemned none.
4. One milch cow.
5. Milk product the same.
6. General health good.
7. Lost none since the test.
8. —
9. Lost none.
10. No advantage.

T. L. KNOWLES, East Orleans : —

1. March, 1895.
2. One.
3. None.
4. One.
5. Same as usual.
6. Good.
7. None.
8. —
9. None.
10. Have not formed any.

JOSEPH LINNELL, East Orleans : —

1. March, 1895.
2. One.
3. None.
4. One.
5. Not affected.
6. Good until July 10, when she was struck by lightning and killed.
7. One.
8. Electricity.
9. None.
10. Not heard any complaints nor any ill effects from the use of tuberculin in this neighborhood.

ASA F. MAYO, East Orleans : —

1. Last spring.
2. Three.
3. None.
4. Two.
5. No difference.
6. Good.
7. None.
8. —
9. None.
10. My opinion of your tuberculin is that it has done no harm here.

O. DOAN, East Orleans : —

1. In March, 1895.
2. Two.
3. None.
4. One.
5. No difference.
6. Good.
7. None
8. —
9. None.
10. My experience with it has not been sufficient to warrant an opinion.

C. W. H——, East Orleans : —

1. Last spring, probably March.
2. Two.
3. None.
4. One.
5. No change after being tested.
6. Good.
7. None.
8. —
9. Never have lost any.
10. I could not see as it was any damage to my cattle.

—— East Orleans : —

1. Not sure, but think it was last March.
2. One.
3. None.
4. One.
5. The same.
6. Good.
7. None.
8. —
9. Never have lost any.
10. My cow was not injured by the test, which was about two months before calving.

S. E. SPARROW, East Orleans:—

1. February, 1895. 2. Two. 3. None 4. Both. 5. The same.
6. Good. 7. None. 8. — 9. None. 10. No damage.

B. DOANE, East Orleans:—

1. Early spring. 2. Nine. 3. None. 4. One. 5. The same. 6.
- Good. 7. None. 8. — 9. None. 10. It seemed to have
no bad effect upon them

W. J. NICKERSON, East Harwich:—

1. Last spring. 2. One. 3. None. 4. One. 5. No change. 6.
- Good. 7. None. 8. — 9. — 10. I saw no effect after
the first few days.

E. B. MURDOCK, Erving:—

1. Oct. 3, 1895. 2. Ten. 3. One. 4. Five. 5. I could see no
difference. 6. Good. 7. None. 8. — 9. Not any. 10.
- I got them tested at my own expense, and think it was money well
invested.

— — — Edgartown:—

1. One year ago. 2. Eight. 3. None. 4. Six. 5. Just the same.
6. Good. 7. None. 8. — 9. One; been eight years on farm
and lost one cow in calving. 10. Good.

BERIAH T. HILLMAN, Edgartown:—

1. January, 1895. 2. Three. 3. None. 4. Two. 5. The same.
6. Good. 7. None. 8. — 9. None. 10. I am not able to
say anything as to its being a proper test, but I have perceived no ill
effects from its use.

C. R. BEETLE, Edgartown:—

1. About Jan. 8, 1895. 2. Thirteen. 3. None. 4. Nine. 5. No
variation. 6. Good. 7. None. 8. — 9. None. 10. I
do not see that the use of tuberculin has any great disadvantage.

S. A. DRAPER, East Norton:—

1. Oct. 10, 1895. 2. Eight. 3. None. 4. Five. 5. I saw no
difference. 6. Good. 7. None. 8. — 9. None. 10. I
have not seen any ill effects yet.

GEORGE MAURY, Edgartown:—

1. January. 2. Four. 3. None. 4. Two. 5. No difference. 6.
- Good. 7. None. 8. — 9. None. 10. I think my cattle
experienced no bad effects from the use of tuberculin.

— — — Gardner:—

1. Middle of August, 1895. 2. Nine. 3. Five. 4. Eight. 5. No
perceptible difference. 6. Good. 7. None. 8. — 9. —
10. I see no ill effects from its use as yet.

— — Gardner:—

1. Sept. 7, 1895. 2. Thirteen. 3. Two. 4. One. 5. Equal. 6. Cough as before. 7. None. 8. — 9. Not any. 10. Hard to answer.

ALICE W. ATTAQUIN, Gay Head:—

1. Latter part of January or first of February. 2. Two. 3. None. 4. One. 5. Milk was not so good for about two months after the test. 6. Well. 7. None. 8. — 9. — 10. From my experience I approve of it for all cattle. After two months our cows' milk was as good as ever and still continues so.

T. C. JEFFERS, Gay Head:—

1. January, 1895. 2. Six. 3. None. 4. One. 5. The same. 6. Good. 7. None. 8. — 9. None. 10. None.

— — Gardner:—

1. Last of August. 2. Twenty-eight. 3. Ten. 4. Nine. 5. About the same. 6. Good. 7. None. 8. — 9. None. 10. That it is a sure test for tuberculosis, and is not detrimental to the general health of the cattle.

EDWARD SIMONDS, Greenfield:—

1. December, 1894. 2. Sixty-three. 3. Two. 4. Forty. 5. No change. 6. Good. 7. — 8. — 9. — 10. Harmless so far as I can discover.

GEORGE MIXTER, Hardwick:—

1. June 9, 1895, twenty-six tested at Hardwick. Dec. 26, 1894, ten tested at Francis Shaw's, Wayland. Date unknown. Twelve tested at Fal-mouth, farm of H. H. Fay. 2. June 9, 1895, twenty-six head. 3. One ox condemned, recently purchased. 4. Fourteen milch cows. 5. Could not see that it made any difference. 6. Good. 7. One lost a calf. 8. Indigestion, stoppage. 9. Three, one cow in calving, one calf from indigestion, one calf scours. 10. The ox condemned had tubercles in right lung. I have seen no effect whatever on the others.

— — Haverhill:—

1. August, 1895. 2. Thirteen. 3. One. 4. Ten. 5. Didn't vary very much. 6. Very good. 7. None. 8. — 9. None. 10. I think if it is used right and the test made properly it is a very good thing.

SAMUEL MOODY, Harwich:—

1. April, 1895. 2. Seven. 3. None. 4. All. 5. Same. 6. Good. 7. None. 8. — 9. None. 10. I saw no difference in my cows before and after the test, only a slight falling off in milk for one day, caused, I think by their feed being withheld on the day of the test.

JOHN E. PARSONS, Lenox : —

- | | | | | |
|-------------------------|----------------|----------|--------------|----|
| 1. January, 1895. | 2. Twenty-six. | 3. Two. | 4. Fourteen. | 5. |
| Shrunk some after test. | 6. Good. | 7. None. | 8. — | 9. |
| One in four years. | 10. Favorable. | | | |

— — — Lynn : —

- | | | | | |
|-------------------|-----------|-------------|-----------------|-------------|
| 1. November last. | 2. Seven. | 3. Not any. | 4. All of them. | 5. |
| About the same. | 6. Good. | 7. Not any. | 8. — | 9. Not any. |
| 10. — | | | | |

R. A. SCHMIDT, Superintendent for G. G. Haven, Lenox : —

- | | | | | |
|---------------|----------|----------|----------|---------------------------|
| 1. — | 2. Four. | 3. None. | 4. All. | 5. Can see no difference. |
| 6. Very good. | 7. None. | 8. — | 9. None. | 10. An excellent thing. |

JOHN MUDGE, Lynn : —

- | | | | | |
|------------------|------------|---------|----------|------------------------|
| 1. Oct. 3, 1895. | 2. Eleven. | 3. Six. | 4. Six. | 5. No difference. |
| 6. Good. | 7. None. | 8. — | 9. None. | 10. Good agent to use. |

F. K. SMITH, Lexington : —

- | | | | | |
|----------------|-------------|------------|---------|-----------------------------|
| 1. October 26. | 2. Fifteen. | 3. Eleven. | 4. All. | 5. No change. |
| 6. Good. | 7. None. | 8. — | 9. One. | 10. I decidedly approve it. |

C. P. HARTWELL, Littleton : —

- | | | | | |
|----------------------------------|------------------------|----------|-------------------------------|--|
| 1. October 6. | 2. Twenty. | 3. Six. | 4. All nearly dry, with calf. | |
| 5. I think they shrunk a little. | 6. Good. | 7. None. | 8. — | |
| 9. None. | 10. Nothing injurious. | | | |

W. W. DAVENPORT, Leyden : —

- | | | | | |
|---|---------------------|----------|----------|------|
| 1. Some in July and some in August. | 2. Thirteen tested. | 3. None. | | |
| 4. None. | 5. — | 6. Good. | 7. None. | 8. — |
| 10. Can't say anything for or against it. | | | | |

J. A. HARWOOD, Littleton : —

- | | | | | |
|-------------------------|------------------|------------|------------|----------|
| 1. Aug. 26, 1895. | 2. Twenty-seven. | 3. Twenty. | 4. Twelve. | 5. |
| No change. | 6. Good. | 7. None. | 8. — | 9. None. |
| I consider it reliable. | | | | 10. |

JAMES SEELEY, Superintendent for John Sloane, Lenox : —

- | | | | | |
|-------------------|---------------------------------|----------|----------|-----------------------------------|
| 1. Jan. 14, 1895. | 2. Thirty-two head. | 3. Five. | 4. Five. | 5. One-third less after the test. |
| 6. Good. | 7. None. | 8. — | 9. One, | |
| cause unknown. | 10. Indicated good in our case. | | | |

S. W. YOUNG, Methuen : —

- | | | | | |
|-------------------------------------|----------|----------|-----------------------|-----------------------------|
| 1. February, 1895. | 2. Six. | 3. None. | 4. Four. | 5. There was no difference. |
| 6. Good. | 7. None. | 8. — | 9. Never had any die. | |
| 10. I can't see any change in them. | | | | |

E. D. HOWE, Marlborough : —

1. August 14 and October 30. 2. Twenty-nine. 3. Six. 4. Five.
5. No material difference. 6. Good, never better. 7. None. 9.
- None. 10. Am convinced it is reliable and safe; but as deductions from it depend upon human judgment, mistakes are liable to occur, owing not so much to the tuberculin as to the fallibility of human judgment.

F. C. CURTIS, Marlborough : —

1. Aug. 26, 1895. 2. Fifteen. 3. Three. 4. Three. 5. About the same.
6. Good. 7. None. 8. — 9. None. 10. That it leaves no bad effect upon the animal tested.

E. C. WILLIAMS, Superintendent City Farm, Marlborough : —

1. Aug. 21, 1895. 2. Eleven. 3. Nine. 4. Nine. 5. No change.
6. The very best. 7. None. 8. — 9. None. 10. It is a Godsend to mankind. It purifies.

E. S. ALLEN, North Tisbury : —

1. February, 1895. 2. One. 3. None. 4. One. 5. No difference.
6. Good. 7. None. 8. — 9. None. 10. —

C. D. LUCE, North Tisbury : —

1. February, 1895. 2. Seven. 3. None. 4. Six. 5. Nearly dry.
6. Good. 7. None. 8. — 9. — 10. Perceive no difference.

— — North Tisbury : —

1. February, 1895. 2. Two. 3. None. 4. Two. 5. The same.
6. Good. 7. None. 8. — 9. None. 10. My opinion is that it is all right.

HORATIO MOORE, New Braintree : —

1. January 23 and February 8. 2. Forty-two. 3. Twenty-six. 4. Twenty.
5. Unchanged. 6. Very good. 7. None. 8. —
9. Two of tuberculosis. 10. I thoroughly believe in tuberculin as a diagnostic.

W. M. SMALL, North Truro : —

1. March, 1895. 2. Six. 3. None. 4. Three. 5. The day after the test each cow gave three pints less than before.
6. Good. 7. None. 8. — 9. None. 10. My limited experience with tuberculin will not allow me to express my opinion. I don't know whether it stopped the flow of milk or it stopped by not feeding them.

JAS. SILVID, Nantucket : —

1. 1894. 2. Three. 3. None. 4. All. 5. — 6. Good. 7.
- None. 8. — 9. None. 10. Good.

— — Northborough : —

1. Nov. 12, 1895. 2. Nine. 3. Two. 4. Five. 5. A little less, owing to no feed and water; back now. 6. They seem well. 7. None except the two taken. 8. — 9. None. 10. It is too soon for us to form an opinion yet.

T. C. COTTLE, North Tisbury : —

1. About Jan. 20, 1895. 2. Seven. 3. None. 4. One. 5. —
6. Good. 7. None. 8. — 9. None. 10. —

SMITH & LITTLE, by Benj. B. Smith, North Tisbury : —

1. January or February, 1895. 2. Five. 3. None. 4. Five cows.
5. No change. 6. Good. 7. None. 8. — 9. None. 10. I do not think it did any injury.

F. H. REED, North Tisbury : —

1. Last of February. 2. Thirteen. 3. None. 4. Four. 5. Comparatively no difference. 6. Good. 7. None. 8. — 9. None. 10. —

WILLIAM CHASE, North Tisbury : —

1. About a year ago. 2. Two cows. 3. None. 4. Two. 5. No difference. 6. Good. 7. None. 8. — 9. None. 10. Neither good nor harm.

— — West Acton : —

1. About a year ago. 2. Twenty-five. 3. Six. 4. All but two. 5. Could not tell, as they were in quarantine a long time. 6. See no difference between them. 7. None. 8. — 9. From one to three a year. 10. Have seen no bad effects from its use.

C. D. HOAR, Norwood : —

1. June, 1895. 2. Twenty-four. 3. Eight. 4. Eighteen. 5. Noticed no difference in the sound cattle, but the diseased shrunk considerable. 6. Good. 7. None. 8. — 9. None. 10. I don't think it is injurious to sound cattle.

A. L. WALKER, Orleans : —

1. About last February. 2. Two. 3. None. 4. Two. 5. No difference. 6. Good. 7. None. 8. — 9. None. 10. Cannot see any effect.

W. A. EDWARDS, Orleans : —

1. February and November, 1895. 2. Two. 3. None. 4. Two. 5. About the same. 6. Good. 7. None. 8. — 9. None. 10. I do not think much about it.

WM. H. SNOW, Orleans : —

1. Some time in March, 1895. 2. One. 3. None. 4. One. 5. Decreased about four quarts for about two months after testing. 6. Good. 7. None. 8. — 9. None. 10. —

SAMUEL HURD, Orleans:—

1. I think it was in March. 2. One. 3. None. 4. One. 5. No difference.
6. Good. 7. None. 8. — 9. None. 10. I don't know as I have any opinion either way. Any how, my cow had twin calves last July, and I guess the test did not hurt her any.

JEBEZ SPARROW, Orleans:—

1. The last of February. 2. One. 3. None. 4. One. 5. Dry, with calf
6. Good. 7. None. 8. — 9. None. 10. Good.

ASA O. SMITH, Orleans:—

1. First of March, 1895. 2. One. 3. None. 4. One. 5. Seven quarts before, five after.
6. Good. 7. None. 8. — 9. None. 10. —

J. HIGGINS, Orleans:—

1. Last spring. 2. One. 3. None. 4. One. 5. Did not notice any difference.
6. Good. 7. None. 8. — 9. None. 10. —

JOHN HOPKINS, Orleans:—

1. December, 1894. 2. Two. 3. None. 4. Two. 5. About the same.
6. Good. 7. None. 8. — 9. None. 10. Do not see any difference before or after.

GEORGE R. MARGINE, Orleans:—

1. March. 2. Two. 3. Not any. 4. Two. 5. The same. 6. Good.
7. Not any. 8. — 9. I never lost any cattle, never had any sick. 10. None

JOHN F. WALKER, Orleans:—

1. In the early spring. 2. One. 3. None. 4. One. 5. A small shrinkage, say twenty percent. less.
6. Good. 7. None. 8. — 9. None. 10. I am not ready to express an opinion until my cow comes in new milk.

OWEN COPP, Palmer:—

1. October, 1895. 2. Forty. 3. Eighteen. 4. Twenty-four. 5. No material difference.
6. Good. 7. None. 8. — 9. None. 10. My experience is limited to this test, but my opinion of tuberculin is good, so far as it goes.

F. W. AMES, Pepperell:—

1. Middle of August. 2. Eleven. 3. None. 4. Eight. 5. No difference except at the time.
6. Good. 7. None. 8. — 9. None. 10. My opinion is favorable to its use. I believe in it, and would not have any cattle in my barn except those that had been tested.

Miss A. M. JEWELL, Pepperell:—

1. October 11. 2. Fourteen. 3. One. 4. Ten. 5. About the same.
6. Good. 7. None. 8. — 9. None. 10. I think every herd in the State ought to be tested.

G. FERGUSON, Superintendent for F. A. Schermerhorn, Pittsfield:—

1. January 22, 1895. 2. Twenty-eight. 3. None. 4. Twenty. 5. About the same.
6. Good. 7. None. 8. — 9. None. 10. I believe there are no bad results from its use.

— — — Stockbridge:—

1. March 13, 1895. 2. Nine. 3. None. 4. Eight. 5. No difference.
6. Good. 7. None. 8. — 9. None. 10. Favorable.

— — — Southborough:—

1. In January. 2. Two cows. 3. None. 4. Both. 5. It was the same before and after.
6. Very good. 7. None. 8. — 9. Not any. 10. Never had any experience with it.

GEO. L. WHITNEY, Sherborn:—

1. Oct. 31, 1895. 2. Thirty-six. 3. Twenty-five. 4. Twenty-one.
5. There has been no change. 6. Good. 7. None. 8. — 9. None.
10. I can see no bad effects from it as yet, cows producing a good flow of milk and thriving well. After seeing the condemned one slaughtered am well satisfied with it. Hope the good work will go on.

W. S. LEWIS, Stow:—

1. Nov. 11, 1895. 2. Twenty-seven. 3. Ten. 4. Twenty-two. 5. No shrinkage after second day.
6. Good. 7. None. 8. — 9. None. 10. Good.

JOHN C. MAYRICK, South Truro:—

1. February, 1895. 2. Two. 3. None. 4. Two. 5. Good. 6. Good.
7. None. 8. — 9. None. 10. I cannot say.

R. MATHER BAGG:—

1. Last of 1894 and first part of 1895. 2. Sixty tested. 3. Eight. 4. All.
5. About the same. 6. All right, with two exceptions, which dried up in milk and seemed to be injured by the test. 7. None.
8. — 9. — 10. I think tuberculin pointed out the infected cows where nothing else would.

W. F. FLANDERS, Squibnocket:—

1. About Feb. 1, 1895. 2. Two. 3. None. 4. One. 5. Calf ran with cow.
6. Good. 7. None. 8. — 9. None. 10. Saw no change from treatment, so could form no opinion from experience.

EDY C. FLANDERS, Squibnocket:—

1. Have not the date, some time last winter. 2. Four. 3. None. 4. Three. 5. Normal. 6. Good. 7. None. 8. — 9. Never lost any. 10. Saw no change. Think it unnecessary in Dukes County.

EDWARD F. COLLINS, Southborough:—

1. Sept. 19, 1895. 2. Twenty-nine. 3. Two, retest, four, in all six of original herd. 4. Five. 5. No difference at all. 6. Excellent. 7. None. 8. — 9. None. 10. On the whole am much pleased with it.

RUFUS SMITH, Sunderland:—

1. March and June, not all at one time. 2. Twenty. 3. Seven. 4. All. 5. We could see no change. 6. Good. 7. None. 8. — 9. — 10. It seems to be a safe and reliable means to determine the presence of tuberculosis.

GEO. L. CLEMENCE, Southbridge:—

1. Aug. 23, 1895. 2. Twenty-six. 3. Five. 4. Twenty-one. 5. Did not change. 6. Good. 7. One by retest. 8. — 9. None. 10. Favorable.

ZERA H. FISKE, Shelburne:—

1. The last of September, I think it was September 25. 2. Twenty-two. 3. One. 4. Eighteen. 5. There was no perceptible difference. 6. Good, very. 7. None. 8. — 9. None except a cow last winter which was slaughtered for beef and proved to have tuberculosis in its early stages. 10. I think tuberculin is a fine thing from my experience with it.

J. N —, Southborough:—

1. December, 1894. 2. About one hundred and thirteen. 3. Nineteen. 4. Ten or twelve. 5. About the same. 6. Good. 7. Two. 8. Natural causes. 9. No appreciable difference. 10. Excellent.

SILAS RYDER, South Truro:—

1. March, 1895. 2. One. 3. None. 4. One. 5. About equal. 6. Very good. 7. None. 8. — 9. None. 10. I did not see any perceivable difference in my cow.

— — — South Truro:—

1. March, 1895. 2. One cow. 3. None. 4. One. 5. Two quarts per day. 6. Good. 7. None. 8. — 9. None. 10. Cow been in good health since its use.

MIRA BROWN, Sunderland:—

1. — 2. Seven. 3. None. 4. All. 5. The same. 6. Good. 7. None. 8. — 9. Two. 10. I think it is a most wonderfully good agent for detecting disease.

R. L. DAY, South Framingham : —

1. Dec. 21, 1894. 2. Twenty-one. 3. Five. 4. Fifteen. 5. One
and one-half to two quarts less. 6. Good. 7. None. 8. —
9. None. 10. Haven't formed any.

HEMAN M. LOOK, Squibnocket : —

1. Either latter part of January or first of February. 2. Four. 3. Not
any. 4. One. 5. I see not any difference. 6. Good. 7. Not
any. 8. Not any disease. 9. Not any. 10. I do not think it
makes any difference.

— — Townsend Harbor : —

1. About two months ago. 2. Thirteen. 3. Two. 4. Twelve. 5.
No difference. 6. Good. 7. None. 8. — 9. None. 10.
I can't see any bad effect of it.

T. S. HITTINGER, Townsend Harbor : —

1. I think last August, 1895. 2. Nineteen cows, two calves, one bull.
3. Two cows, one bull. 4. Two. 5. Same as usual. 6. Good.
7. None. 8. — 9. None. 10. Very favorable and should
like to see the law so that every owner should be obliged to have his
cattle tested.

— — Truro : —

1. March 15, last. 2. One. 3. None. 4. One. 5. The same. 6.
Good. 7. None. 8. — 9. None. 10. Had no bad effect on
my cow.

A. D. TURNER, Townsend Harbor : —

1. Nov. 3, 1895. 2. Five. 3. Nine. 4. Five. 5. Did not see that
it made any difference. 6. Good. 7. None. 8. — 9. None.
10. I do not know as I can say anything against it. If I had another
herd should want them tested.

— — Truro : —

1. This fall. 2. One. 3. None. 4. One. 5. Good. 6. Good.
7. None. 8. — 9. None. 10. None.

T. F. GRANTHAM, Superintendent Pingree farm, Topsfield : —

1. February, 1895. 2. Thirty-one. 3. Nineteen. 4. All but one.
5. About the same. 6. Good. 7. No. 8. — 9. None.
10. Tells the story.

BENJ. C. CROMWELL, Vineyard Haven : —

1. I do not remember. 2. Two. 3. Neither. 4. Both of them. 5.
Same. 6. Good. 7. None. 8. — 9. None. 10. Good,
as far as I know.

— — Vineyard Haven : —

1. About January. 2. Two. 3. None. 4. Two. 5. I see no difference.
6. Good. 7. One cow was with calf, lost the calf. 8. —
9. — 10. —

F. H. JENKINS, Vineyard Haven : —

1. February, I think. 2. Three. 3. None. 4. All. 5. Some shrinkage.
6. Good. 7. None. 8. — 9. None. 10. No opinion.

— — West Tisbury : —

1. Last winter. 2. Two. 3. None. 4. One. 5. Four quarts. 6. Good.
7. None. 8. — 9. None. 10. Didn't hurt them.

— — Westborough : —

1. Dec. 6, 1895. 2. Thirty-three. 3. Four. 4. Thirty. 5. Comparatively no difference.
6. Good. 7. Three. 8. One cow from pneumonia, two calves from poisoning. 9. Not any. 10. We are favorably impressed with it.

— — West Tisbury : —

1. January, 1895. 2. Thirty. 3. None. 4. Two. 5. No change.
6. Good. 7. One. 8. Drowned. 9. None. 10. —

GEO. W. MANTER, West Tisbury : —

1. Jan. 14, 1895. 2. Four. 3. None. 4. One. 5. Four quarts.
6. Good. 7. None. 8. — 9. None. 10. My opinion of tuberculin is not to drink any milk until after three milkings, for what a dog will not drink, folks ought not to drink.

E. N. LUCE, West Tisbury : —

1. About Jan. 15, 1895. 2. One cow. 3. None. 4. One. 5. About three quarts before, same after.
6. Good, had twin calves in September, 1895. 7. None. 8. None. 9. None. 10. Good.

BENJAMIN ATHEARN, West Tisbury : —

1. December, 1894. 2. Three. 3. None. 4. Two. 5. I cannot remember how much milk I got, but do not think they gave any less after the test.
6. Good. 7. None. 8. — 9. Never lost any. 10. It has done no injury to my cattle.

ADELINE MANTER, West Tisbury : —

1. Last winter. 2. Two. 3. None. 4. Two. 5. Saw no difference.
6. Good. 7. None. 8. — 9. None. 10. Have none.

S. V. CRANE, Blackstone : —

1. June 5, 1895. 2. Ten. 3. All of them. 4. — (Not filled out.)

CHAS. SIEVET, West Tisbury : —

1. February, 1895. 2. Three. 3. None. 4. Three. 5. No difference.
6. Good, except that one cow now gives no milk from one teat. 7. None. 8. — 9. — 10. —

ANSON M. LURR, West Tisbury : —

1. March, 1895. 2. One. 3. None. 4. One. 5. See no difference.
6. Good 7. None. 8. — 9. None. 10. —

— — — West Tisbury : —

1. January, 1895. 2. Three. 3. None. 4. Two. 5. No change.
6. Good. 7. None. 8. — 9. None. 10. Saw no effect for good or bad.

GEO. H. MARSH, Webster : —

1. Oct. 25, 1895. 2. Forty-five. 3. Twenty. 4. Twelve. 5. Could see no difference.
6. Same as usual. 7. None. 8. — 9. None. 10. That it has done my herd no harm and that it detected the disease where physical examination would have failed.

F. D. BRIDGMAN, Westhampton : —

1. Three weeks ago. 2. Eleven. 3. Five. 4. Three. 5. I am not certain.
6. Do not know of any change, none. 7. — 8. — 9. — 10. I consider it valuable. I believe the disease can be eradicated by its continued use.

M. G. NORTON, West Tisbury : —

1. February, 1895, I think it was, but did not record date. 2. Six. 3. None.
4. Two. 5. It was less for a time, have perceived no loss this summer. 6. — 7. None. 8. — 9. None. 10. Think it has done no permanent injury.

JOHN E. JOHNSON, West Tisbury : —

1. Cannot tell exactly, but think it was December or January. 2. Five.
3. None. 4. Two. 5. Could see no difference. 6. Good. 7. None.
8. — 9. None. 10. I did not see that it had any effect any way, therefore cannot give any opinion of it.

WM. H. VINCENT, West Tisbury : —

1. December, 1894. 2. One. 3. None. 4. One. 5. No difference.
6. Good. 7. None. 8. — 9. — 10. Harmless.

E. A. WATERS, West Boylston : —

1. Oct. 23, 1895. 2. Twelve. 3. Four. 4. Four. 5. Not affected by the test.
6. Good. 7. None. 8. — 9. None. 10. So far as my observation goes, it has no bad effect on animals not tuberculous.

HENRY SHELDON, Wilmington: —

1. First part of November, 1895. 2. Ten. 3. Three. 4. Three.
5. Giving more now than before being tested. 6. Good. 7. None
except the three condemned. 8. Killed because condemned. 9.
None. I had one killed that proved to have it, about six weeks before
having them tested. 10. I should not want to take any cattle into my
herd that have not been tested. I have in my herd one cow bought in
Billerica about eleven months ago. She was tested before purchased,
and again with my others. She is doing as well as any one could
wish. Bought at auction, represented to give eight quarts, and I found
she gave nine quarts.

T. S. WOOD, Westminster: —

1. A part of it. 2. Twelve were tubercilined. 3. Five. 4. All. 5.
No difference. 6. Good. 7. None. 8. — 9. One. 10.
I think it the only known way to detect tuberculosis with any certainty,
and I wish to have the remainder tested as soon as you can attend to it.

HENRY J. ALLEN: —

1. Eleven months ago. 2. One. 3. None. 4. One. 5. Alike.
6. Good. 7. None. 8. — 9. None. 10. I have none.

1. Last March. 2. Twenty-three head. 3. Eight. 4. All of them.
5. About the same. 6. Good. 7. Not any. 8. — 9. I do
not know just how many. 10. I did not see any harm from the use
of it.

1. I think about a year ago. 2. Four. 3. None. 4. Four. 5.
Could see no change. 6. Good. 7. None. 8. — 9. None.
10. I see nothing objectionable.

JAMES Q. MINGO: —

1. Some time about the last of December. 2. Five head. 3. None.
4. Four. 5. They were dry. 6. Good. 7. None. 8. —
9. None. 10. I can perceive no hurt from it.

A. H. WINGETT, Superintendent: —

1. January, 1895. 2. Twenty head. 3. None. 4. Fourteen. 5.
Very little difference. 6. Excellent. 7. None. 8. — 9.
None. 10. Was at first prejudiced against its use; but had I any
doubt about the disease being in the herd I would have them tested
again at once, which means that I think it to be the only thing we can
rely on. From our experience I do not consider it at all jeopardizes
the health of cows.

1. March, 1895. 2. Nine. 3. None. 4. Six. 5. Not much dif-
ference. 6. Good. 7. No disease. 8. — 9. None. 10.
I do not see any difference in my animals.

B. N. LUCE: —

1. February, 1894. 2. Five. 3. None. 4. Four. 5. The same.
6. Good. 7. None. 8. — 9. None. 10. I can see no difference.

J. M. RAFAES: —

1. September, 1895. 2. Twelve cows and one bull. 3. Five. 4. Eleven.
5. Some the same; two cows have lost on milk, and one almost dry and don't come in till next June. 6. — 7. —
8. — 9. — 10. My opinion is that it is a good thing, from what I can see from my herd.

S. L. SMITH: —

1. Last winter, March, I think. 2. One. 3. None. 4. One. 5. The same.
6. Good. 7. None. 8. — 9. None. 10. It is all right.

-
1. Last winter when the commissioners were here. 2. Four. 3. None.
 4. None. 5. — 6. Good. 7. None. 8. — 9. None.
 10. I did not notice any change in my cattle after the use of tuberculin. They were all healthy.

-
1. Last winter, in February. 2. Four. 3. None. 4. Two. 5. Perceived no difference.
 6. Good. 7. None. 8. — 9. None. 10. Did not perceive any difference.

-
1. Last of January or first of February. 2. Seven. 3. None of them.
 4. Three. 5. About the same. 6. Better. 7. Not any. 8. —
 9. Not any. 10. I think it is a good thing.

BALDWIN & SMALL: —

1. March, 1895. 2. Five. 3. None. 4. Four. 5. No change observed.
6. Good. 7. None. 8. — 9. Two cows in ten years. 10. Harmless.

ASHBY, Nov. 18, 1895.

To Mr. F. H. OSGOOD, *Boston, Mass.*

DEAR SIR: — I have this day received your circular of inquiry as to the condition of my herd since they were tested by your agents.

1. My herd was tested the 10th of October last.
2. It consisted of twenty-one head.
3. None of them were condemned as tuberculous.
4. Fourteen cows and seven calves.
5. There was no difference in the quantity the day previous and the day following the test, as we were careful to note the fact.
6. Have failed to notice any change.

7. Have lost no animals since the test.

8. ———

9. Have lost no animals the past year.

10. I consider the tuberculin test when properly applied the most reliable and satisfactory method of determining what cattle are affected with tuberculosis. I have no fears of tuberculin injuring cattle where proper care is taken. I have known of a cow having the test applied four times in one year or less, and for several years there were no signs of injury, nor would I be willing to have any but tested cattle among my herd.

I wish the commissioners to understand that I have been most thoroughly satisfied with the manner the test was conducted as relates to my individual herd and all that have been made in this vicinity, and only wish that the entire farming community in the State were as willing to support and help the commission as some are to find fault and hinder.

Respectfully yours,

JOEL A. HAYWARD.

AGAWAM, MASS., Nov. 21, 1895.

F. H. OSGOOD, *Chairman*.

DEAR SIR:—In reply to your inquiries, would state that my herd of cows was tested with tuberculin in December, 1894. Nine animals, eight being milch cows, were tested and six condemned. I could see no variation in production of milk after a period of twenty-four hours had expired. Of the remaining three I sold one for beef and the other two are as healthy as ever, as far as I can see. I have lost no animals since the test (except a calf from sunstroke) nor for the same period previous to the test. My opinion of tuberculin is that it is very searching, as many of my cows killed had to be examined very carefully to discover any trace of the disease. In fact it seemed too bad to kill some of them. I also believe it to be an aggravator to the disease where it is already.

Yours truly,

E. K. BODURTHU,

H. E. B.

BARRE, Nov. 19, 1895.

Board of Cattle Commissioners.

GENTLEMEN:—Your letter of inquiry received to-day, and hasten to answer the same. I had one cow quarantined last spring by the inspector, and in June she was tested and condemned. I had three cows left that came out of the same herd, and when Mr. Waters came to appraise the cow that had been condemned, I asked his opinion about the others, and he was suspicious of some of them; and when Mr. Smith told me in September that I could have my herd tested if I wished, I was very glad to do so. I had ten cows at home at that time, and had those tested on the 6th of September, and very much to my surprise, also to Mr. Dennen's, they were all found to be diseased. I had more cattle that were away for the summer, but we were so short of time that I could not get them home. Mr. Dennen promised me that he would test the remainder of my herd when he came here again.

You ask what my opinion is of tuberculin. I did not believe in it at first, as I thought it injured the cows, but I have been thoroughly converted. I do not think there is any other way that this disease can be surely located. I am satisfied that no one can be positive by a physical examination of an animal. I do not think a healthy animal is injured by the use of tuberculin. I have some cows that have been tested before coming to the market, but cannot say anything regarding their health before or after the test, only to say that they appear to be perfectly healthy now. I think that I have answered all of your questions and given you the information that you wished for. I am expecting Mr. Dennen here to-morrow, and if there is anything that he wishes to know will gladly inform him. Should there be anything more that you wish to know, please write and I will do my best to make things plain to you.

Respectfully,

M. C. EVANS.

FREDERICK H. OSGOOD, *Chairman*.

Boston, Nov. 20, 1895.

DEAR SIR:—In answer to your inquiries regarding my cattle, would say that the herd was tested in October, 1894, and thirteen animals out of twenty-four were condemned. Of those remaining, two died in October, 1895, the cause of death being cancer and inflammation which set in after calving. I was present at the post-mortem examination of all the animals condemned, and am satisfied that they all had the disease.

About Nov. 1, 1895, the herd, now consisting of twenty animals all previously tested, was again tested, and a two-year-old new milch heifer that was in the herd tested in 1894 was condemned.

I could not see that the testing affected the quantity or quality of the milk at either time, nor have the animals shown any bad effects from its use, but have as a whole been apparently in perfect health.

Having lost nine or ten cows from tuberculosis during the five years previous to the first test, I consider the results very satisfactory, and intend having the herd tested occasionally in the future, to see that the disease does not again get a start among them. At the present time I would not bring any animal into my herd that had not been subjected to the test, and believe that tuberculin does all that is claimed for it by the commission.

Yours truly,

N. R. JONES.

Mr. OSGOOD.

CHESTER, Nov. 20, 1895.

SIR:—Yours of recent date is at hand. I think the tuberculin test is a good thing. In two days after the test I shouldn't have known they had been tested; gave just as much milk, ate well, and have done well ever since. I worked my oxen the same afternoon, and worked them every day, and they gained in flesh nicely ever since.

I wish the tuberculin test could be made compulsory, and in all the States around us, so this disease could be swept from the country.

Yours truly,

W. H. BABB.

CHESHIRE, Nov. 20, 1895.

MESSRS. : — I am well pleased with the testing of our cattle. What can we do without it? How could we ever get rid of the disease? If it were in my power to pass a law that all cattle should be tested, I would do so within twenty-four hours. (Mr. Dennen, Mr. Harwood and Mr. Brown are gentlemen in every sense of the word. They should have good pay for working day and night.)

Yours truly,

W. F. CARD.

CHESHIRE, MASS., Nov. 22, 1895.

DEAR SIRs : — In regard to the different questions which you wished me to answer, I will say that my herd was tested Nov. 8, 1895, and it consisted of seventeen animals. All were found in good health, and none were condemned. There were sixteen milch cows, and after the test each cow gave about a quart less to a milking than before the test. The health of my herd has been good since the test and not any have died.

From my experience of tuberculin in my herd I consider it a good thing, and I think that it ought to become a law that every herd of cattle should be tested at least once in six months.

Yours very truly,

PHILO LEONARD.

DUNSTABLE, Nov. 21, 1895.

To the State Board of Cattle Commissioners.

GENTLEMEN : — My herd of twelve cattle was tested with tuberculin on October 12. Five of that number proved to be tuberculous. I could see no particular difference in the milk product during the test, nor have since. Their general health has been just as good as before the test. I have not had a cow lose a meal since, nor show any signs of sickness whatever. I have lost no animal since nor before the test.

My opinion of tuberculin is that it is a reliable diagnostic agent but perhaps not infallible, but the most likely to fail in the very worst cases. I think no animal will receive any injury from its use.

Yours respectfully,

H. J. TOLLES.

DUNSTABLE, MASS., Nov. 18, 1895.

FREDERICK H. OSGOOD, Chairman, State Board of Cattle Commissioners.

DEAR SIR : — I have not answered question No. 5 nor No. 6. When the most of my herd was condemned I neglected their feed and consequently their milk product would fall off. I could see no injurious effect from the use of tuberculin upon the cow I had left. I purchased tuberculin, tested cows and they are doing well. An old Scotch chemist told me that he thought that a strong solution of sulphate of iron would be a good disin-

fecting agent. I know very little about disinfecting for tuberculosis. I have followed the plough for more than fifty years, and I have never been so alarmed about my prospects for the future as I am now. I never knew that the disease tuberculosis was in my herd until about two years ago. I killed a cow and buried her and supposed I was then free. Local inspection pronounced me free last December.

I am truly yours,

JONAS C. KENDALL.

DALTON, MASS., NOV. 27, 1895.

Board of Cattle Commissioners.

Your communication came while I was away up in Maine on a hunting trip, so you will please pardon the delay in answering.

My herd of cattle was tested Sept. 30, 1895. It consisted of sixteen head; nine of these were condemned; eight of these were milch cows. I did not notice any difference in the milk product after the test, and their general health has been good since; in fact, I do not see that the test has affected their health in any way as yet. I have not lost any cattle since the test; had one condemned, which I had butchered for beef, just before the test.

I believe that every owner of stock should have his herd tested with tuberculin. I have just butchered two hogs and found one of them was diseased.

Yours truly,

F. L. WARREN.

EDGARTOWN, MASS., NOV. 12, 1895.

Board of Cattle Commissioners.

GENTLEMEN:—Your letter was received on the 11th. My herd was tested January, 1895. It consisted of seventeen cattle, and none of them were condemned as tuberculous. Twelve of them were milch cows. I did not perceive any change in the milk after the test. It was about the same as before. Have not lost any cattle since the test and their health is good. I have not lost any cattle for several years. As for tuberculin I think it is a very good thing as far as I know.

Yours respectfully,

CHARLES F. SHURTLEFF.

EDGARTOWN, NOV. 18, 1895.

Board of Cattle Commissioners.

GENTLEMEN:—I would say in reply to your letter that I have but one cow. This cow was tested about one year ago. I don't think it affected the milk in the least, as I could see. The health of the cow has been good.

Yours respectfully,

CHARLES MAYHEW.

EDGARTOWN, Nov. 13, 1895.

Mr. F. H. OSGOOD.

DEAR SIR:—My herd was tested last January. It consisted of two cows. None of them were condemned as tuberculous. One of them was a milch cow. The comparative milk product was about the same before and after the test. Their general health has been good. I have lost none since the test. My opinion of tuberculin from my experience with it in my own herd it has done them no harm.

Yours with respect,

JOHN P. VINCENT.

GAY HEAD, Nov. 20, 1895.

DEAR SIR:—In answer to your questions, the herd was tested last January. It then consisted of seventy-nine animals. There was none condemned, for there was no disease among the herd. The herd contained twenty-three milch cows. They would average from four to six quarts per day before and after the test. I could see no difference. I asked some of the neighbors. They told me they saw no difference before or after the test. There has been good health. Lost none since the test.

Albert L. Jeffers lost an ox from a strain about a week before the men came around with the test.

My opinion of tuberculin is that it does no harm nor no good. I could see no difference with the beasts after the test. Our cattle are always healthy on Gay Head.

Yours with respect,

S. J. HASKINS.

HAVERHILL, MASS., Nov. 18, 1895.

Dr. F. H. OSGOOD.

DEAR SIR:—Your circular of inquiry is received and short answers are placed on it, but perhaps further explanation may be well. My whole number of animals was forty-two, but two were thought too young to test. One of the calves was tested, however, and did not react much, but at Mr. Dennen's suggestion she was slaughtered with the condemned cows and proved to be tuberculous. The milk supply from the uncondemned cows was less for a few days, but after that there was not much change.

I at once bought sixteen tested cows at Brighton, of which five or six were springers, and the rest said to be in new milk. When the springers calved the calves had the scours badly, and three died at two or three days old and the others did not thrive. On the whole, the new cows are not doing as well as I expected, but I cannot say that tuberculin had any ill effects on them. I was satisfied with the use of tuberculin in my herd at that time. I have no doubt that those condemned had more or less of the disease of tuberculosis in them. I should like to be sure that the test picked out all the diseased ones, not only in my herd but also in those that I bought at Brighton. While we must welcome the discovery of tuberculin, I feel that we are going to learn much more about tuberculosis as time

goes on; but we shall not learn by opposing the use of tuberculin or condemning the Cattle Commissioners and all laws made on the subject, but rather by co-operation and working with commissioners and veterinarians.

Perhaps the suggestion of Dr. Cutter of New York, that tuberculosis may be diagnosed by testing the blood, may lead to something useful sometime. I have noted with some interest the position of some of the farm papers on this whole business, — the “New England Homestead,” for instance. Last year this paper was very rank in its opposition to tuberculin and commissioners. It published everything it could get hold of against the whole business. But it has gradually weakened, till now it is publishing many pieces in favor of the use of tuberculin, and its opposition to the commissioners has cooled so that it would be satisfied if it could change the chairman and secretary. I would not be surprised if it came soon to admire these two officers also. For myself, I admire the push and earnestness of the commissioners, in face of the opposition of old fogies and ignoramuses, and I hope they will continue to give us the best service possible.

It is not only a great benefit for the public health in giving more healthful milk, butter and beef, but it is also a great pecuniary benefit to the cattle owner. For, in New England, at least, I believe that most cattle owners have been losing every year many dollars worth of stock from tuberculosis, without knowing the disease. I remember some sixteen years ago of sending calves and heifers back into New Hampshire to pasture. They started looking healthy and fat, but began to pine away in the middle of the summer and die, and many of those that came home in the fall died sooner or later. I did not know then what the disease was, but I do know now. And since that time I have lost many right out or sold them for little more than their hides were worth.

And my experience has not been unique, for I know two of my neighbors whose herds were practically ruined by this disease, and I know too that the manufacturers of bolognas have been kept supplied with tuberculous cows. These men have made a business of going round among the milk producers and buying their run-down, unprofitable cows for a small price, and some of these same cow owners say now that the disease is all a humbug, and they never lost anything by it.

It has been a question with me whether the commissioners would do anything further with the herds they have cleaned up this season. I have heard of instances where on a retest other animals were condemned that stood the test at first. If this is a fact, it seems to me that the commissioners ought to look after all herds that have been tested until they were sure they were all right, not only for the benefit of the owners, who have endured a good deal of reproach for having their animals tested, but also that the work may stand as perfect in each community where it has been done.

Hoping that this long story may not weary you, and wishing you the highest and best success, I remain

Very truly yours,

E. A. EMERSON.

P. S. Last December I had a nice four-year-old grade Holstein cow that I had been offered sixty-five dollars for, run down in three weeks so that she was useless; and I killed her and found her badly diseased with tuberculosis.

E. A. E.

HARWICHPORT, Nov. 18, 1895.

HON. FREDERICK H. OSGOOD, *Chairman Cattle Commission.*

SIR:—I received yours of October 26 the 14th of November, on account of its being misdirected. My herd was tested about May 1; consisted of six milch cows. None was condemned as tuberculous. I see no change in quantity or quality of milk. Their health since has been good. Never lost any before or since the use of tuberculin. I see no bad effect from its use in my herd.

Yours truly,

JAMES O. HUESE.

HOLYOKE, Nov. 18, 1895.

MR. F. H. OSGOOD, *Chairman Board of Cattle Commissioners, 52 Village Street, Boston, Mass.*

DEAR SIR:—In reply to yours of the 28th ultimo, my three cows were tested in January last, and one was condemned as tuberculous. They were all milch cows. I could see very little difference in the quantity of milk given before and after the test, and their health has since been excellent.

I have so much faith in tuberculin that I wouldn't have a cow brought onto my place without it had first been tested with it.

Yours truly,

GEO. W. PRENTISS.

HAMPDEN, Nov. 21, 1895.

State Board of Cattle Commissioners.

DR. OSGOOD:—My herd was tested about January, 1895, consisting of seventeen head; three were condemned; eleven were new milch cows. The comparative milk product was no noticeable difference at time of test. Their health has been, as near as I can judge, about the same as last year, no cattle having died, neither have I killed or exchanged any since the test. I killed and buried one, a year before the test, which had tuberculosis.

The tuberculin detected cows that were in a very bad state when killed that I little suspected, and others that showed slight symptoms. It spotted those the same, though slight, and it was a great wonder to me at the time why you did not take those that reacted slightly. But after hearing the howling from the "Homestead" and other croakers, to go slow, stay your scandalous hand and all that kind of personal prate, it is no wonder you did pass some of the more mild cases, and those mild cases have increased with about the same rapidity as before the use of tuberculin.

I am in favor of tuberculin, and as far as hurting them, I do not think it does. I can see no bad effect from the use of it. Some think it aggravates the disease, and, even if that is so, is it not a good point in favor of tuberculin? Should the farmers be allowed to hold these lingering cases with the chances of spreading still further? I should think that was a good point in favor of the test, if such was the case. It did seem a little hard to see my cows killed, but I am now satisfied that if you had the necessary means

provided last year would have saved me a good share of my herd by following the indications of the test a little closer; consequently the disease has gone through my whole herd, just to please a lot of less fortunate grumblers.

I live on high land; my barn is roomy, airy and light. Disease has never showed itself previous to my buying four thoroughbred cows of that Williams of Monson that the State has had so much trouble with, — the man the "Homestead" has had so much sympathy for. Those cows were warranted served by thoroughbred bull, but came black calves just the same. I speak of this to show the honor of the man; and he is a fair specimen of the cow jockeys that are peddling the disease through the country, and I am one of the many victims. I cannot keep, sell or give away my cows, and have no courage to raise a calf, and I would like to ask those that are kicking against your good work what they would do under similar circumstances. I bought these diseased cows in good faith for dairy purposes, and I think it a little hard to be left at my own mercy.

Yours respectfully,

J. L. WEEKS.

LUDLOW, MASS., Nov. 18, 1895.

Dr. F. H. OSGOOD, *Boston, Mass.*

DEAR SIR: — In December, 1893, I had five of my herd tested with tuberculin, four of which were milch cows. One was condemned as tuberculous. The others have since shown no signs of disease. One had been running down for a year, and is now in fine condition. I could see no difference in the yield of milk after the test. I am convinced that the use of tuberculin is a safe and practically sure test, and is absolutely harmless to a healthy animal, judging from my own experience and observation.

Very truly yours,

A. L. BENNETT.

NEW YORK, Nov. 13, 1895.

FREDERICK H. OSGOOD, Esq., *Chairman, Board of Cattle Commissioners,
52 Village Street, Boston, Mass.*

DEAR SIR: — I beg to make the following reply to your favor of the 28th October: —

My cattle, on the island of Chappaquiddic, Edgartown, Mass., were tested some time during the winter of 1894-95. I never knew the exact date. The herd then consisted of six animals, and none were condemned as tuberculous. Two were milch cows at the time of the test and two calved in the spring of 1895. The milk cows were never tested as to milk product, and I can give you no idea of their comparative product before and after the test. The general health of the cattle since the test has been good; none of the animals have died. I have never lost any cattle, although I have had some members of the present herd for about four years. My experience with tuberculin has developed no injurious results. I am somewhat familiar with the test, and believe in it.

Very truly yours,

LESTER W. CLARK.

FIFTH AVENUE HOTEL, MADISON SQUARE,
NEW YORK, NOV. 27, 1895.

Dr. FREDERICK H. OSGOOD, *Chairman, Board of Cattle Commissioners,
Boston, Mass.*

MY DEAR SIR:—In reply to your circular letter of October 28, which reached me, I think, about a week ago, I beg to say that the answer to most of the questions on the list are probably already in your possession, as Dr. Sheldon made a very full and careful record at the time of his examination. The health of my cows has been excellent since the test.

I have no reason to doubt that tuberculin is an accurate test of the condition of cattle, so far as incipient or advanced tuberculous disease is concerned, and that its application to my own herd revealed serious and extensive trouble which previous external examination had failed to discover.

Very truly yours,

ROGER WOLCOTT.

NORTHBOROUGH, MASS., NOV. 18, 1895.

F. H. OSGOOD, Esq.

DEAR SIR:—In reply to your circular received by me to-day, I beg to state that my herd of ten cows have been all tested with tuberculin at various times during the last six months. I have had six condemned, all of them milch cows. In my opinion the tuberculin test does not leave any bad effects on the animals treated. My cows have been in good health ever since the test, and it made no difference in their milking qualities or general health. I have lost no animals since the test, nor prior thereto.

In my opinion tuberculin is a sure test to detect a diseased animal, however slightly it may be affected, and I have not known it to fail in any one instance, and to my mind it leaves no bad effect on the cows whatever.

Yours truly,

WILLIAM WALKER.

NORTON, NOV. 27, 1895.

Board of Cattle Commissioners, 52 Village Street, Boston, Mass.

SIRS:—In answer to your questions with regard to A. I. Sweet's cattle that were subjected to the tuberculin test, would say:—

The herd was tested October 10 and 11, and consisted of three milch cows and two oxen. None were condemned. None have died since. Have noticed no ill effects from the test.

Yours truly,

ARTHUR E. SWEET.

NORTHBOROUGH, MASS., NOV. 18, 1895.

Dr. F. H. OSGOOD.

DEAR SIR:—In answer to your letter of the 18th inst., I would answer the questions with pleasure. My herd consisted of twelve milch cows and

calves at January, 1894. My herd of twelve cows was tested in the latter part of January, 1895, with tuberculin. Two proved to be tuberculous. My ten cows have done better and given more milk since testing than they ever did before. I have lost none since, from any cause whatever. I have had three tested since the new law came into operation, and they passed the test and are doing nicely. About six weeks ago I purchased a cow and had it tested before admitting it to my barn, and she succumbed. Prior to 1895 I had lost three head of cattle from various causes.

In my opinion tuberculin is a sure test for finding tuberculosis. Outside my own herd I have known of over one hundred cows quarantined, and it has proved a sure test in every case but one. I have no hesitation in saying that tuberculin leaves no bad effect on a healthy animal, and is sure to find an unhealthy animal, even although the disease is only in its first stages.

Yours truly,

F. H. ATWOOD.

ORLEANS, NOV. 24, 1895.

DEAR SIR: — In reply to your inquiry wishing to know the condition of my cattle, I will say that my herd was tested last spring. Their general health was very good before the test. It has been good since. None of them were condemned. I have only one milch cow. I see no great difference in regard to the quantity of milk she gave before or after the test. I have lost no cattle since the test. I lost none before. I never lost any cattle in my life.

My opinion of the tuberculin test is that it does not do any harm, and I don't know that it does any good.

Yours very respectfully,

CHAS. F. MAYO.

PASQUE ISLAND, NOV. 15, 1895.

Dr. F. H. OSGOOD, Esq.

DEAR SIR: — Yours of 11th inst. at hand, and in reply will willingly give you what little information I can.

My herd of five head were tested in March. There were four cows, one bull; one cow was condemned and killed. I cannot see any difference in the quantity of milk from the remaining three. Their health has been of first quality since test. I have lost none since test. I have kept cattle sixteen years, and never lost one, not even a calf.

I was satisfied that the cow killed had tuberculosis, although she showed no disease until tested. She was very fat and ate well, and as I never kept over seven head at any time, I don't think I have any opinion of tuberculin. The commission told me a seemingly well cow was sick. They killed her and proved to me they were right. They told me the others were well, but they did not kill them and prove it to me. I don't think my cows were hurt any by the test.

Very respectfully,

G. P. WILCOX.

PROVINCETOWN, Nov. 18, 1895.

Cattle Commissioners.

GENTLEMEN:—Cattle tested in April, 1894, as near as I can recollect. Herd consisted of two cows, none condemned. Two milch cows. Quantity of milk before and after the same. Health good, always has been. Lost none since the test or before.

As to the use of tuberculin I see no difference before or after its use. My cows have been perfectly healthy. They feed in pastures alone and their milk is the same as it has been.

Yours respectfully,

RICHARD BAXTER.

WINTHROP FARM, PROVINCETOWN, Nov. 19, 1895.

FREDERICK H. OSGOOD, Esq., *Chairman Board of Cattle Commissioners,*
52 Village Street, Boston, Mass.

DEAR SIR:—Your letter of October 28, received in due time, and would have received my immediate attention had I not been away, so please excuse the delay. The following I submit as answers to your questions in your letter of October 28:—

Herd tested with tuberculin March 3, 1895. Number of animals, seventeen; milch cows, sixteen. Condemned, none. Milk produced in thirty days prior to test, 2,075 pounds; milk produced in thirty days after test, 1,697 pounds. General health, good. Animals lost since the test, none. Animals lost same length of time prior to test, none.

My opinion of tuberculin has broadened amazingly since I witnessed the test, for I must confess that all the ground I had for opposing the tuberculin test was based on different articles I read in the papers, taking it for granted that the writers of those articles were men of more experience than myself, and naturally had its influence with me; but I have concluded that a very large per cent. of the men who expressed this opposition to the use of tuberculin were, like myself, interested directly or indirectly in dairying, and their judgment was based on prejudice, and that prejudice was born of fear of meeting with a loss to their herd, or that it might result to the detriment in the health of their stock.

I had the opportunity of witnessing the killing and examination of but one animal condemned by your honorable Board, and I improved it. It was condemned by C. A. Dennen, Esq.; and just here I will say that in Mr. Dennen the State has the right man in the right place, who was not only willing but did everything he could to pacify those that had such a dread of the tuberculin test, and more especially with those that were unfortunate enough to have diseased stock. I think I voice the sentiment of Cape Cod dairymen when I say many thanks are due Mr. Dennen for the agreeable way he conducted his part of the business, but nevertheless it was with decision. From a monetary point of view this cow ranked the highest in our town, because she gave the most milk, and you can better imagine the feelings of our townspeople, more especially the neighbors who had been

using the milk from that cow, when they learned she had been condemned by Mr. C. A. Dennen. In this case, however, there was a very sudden change of opinion when the cow was opened and found to be badly diseased. Although good property, her owner would not have kept her a day if he had the least suspicion she was diseased, say nothing about selling the milk. She was a standing menace to the community, and had it not been for tuberculin she would doubtless have been living to-day, sowing seeds of disease and death, and no man living can tell what amount of misery and sorrow would accompany the harvesting.

I am heartily in favor of the tuberculin test, or any other, as for that matter, that the human family will derive a benefit from. I do not think there is a dairyman in this State that can afford to let his cows go untested. If there should be one, the State cannot. This is a matter that is in the interest of any individual in our State, and as we are all interested, I think the State should back the bill and let the good work go on.

Respectfully,

J. S. SMITH.

PEABODY, MASS., Nov. 20, 1895.

F. H. OSGOOD.

DEAR SIR:— Your circular duly received. I have not fully made up my mind in regard to tuberculin. There have been three or four of my cows since they were tested that have prematurely calved. I thought at one time that it might be due to the test, but I should want further evidence pointing in the same direction before I should like to say that it was caused by the tuberculin test. I should not hesitate to have the test applied to another herd of cows, or to the same, if necessary. I am a firm believer in the tuberculin test, and think that any owner of cows makes a great mistake that not only is not willing to have his cows tested, but does not seek for the test himself, so that he may weed out all diseased cows from his herd and feel sure that he is not spreading contamination.

Yours truly,

C. J. EMMERTON.

ROSLINDALE, MASS., Nov. 19, 1895.

FREDERICK H. OSGOOD, *Chairman Board of Cattle Commissioners.*

DEAR SIR:— Your circular of October 28 received last evening. Our herd of cows was never thoroughly tested with tuberculin. Dr. Burr of the Boston Board of Health examined suspicious cases in May or June, and in a herd of twenty-eight found five cases, one of which was here on trial and did not belong to us. The herd was soon removed to the Pierce farm, and we have kept no cows here since. Dr. C. J. Bolton is acting superintendent of Pierce farm.

Very respectfully yours,

EDWARD B. LANE, *Superintendent.*

SOUTHBOROUGH, Nov. 27, 1895.

State Board of Cattle Commissioners.

GENTLEMEN:—Yours at hand. Cattle tested about January 1. Herd consisted of eighteen cows. Eleven condemned. All proved tuberculous on being killed. I think they were all giving milk at the time of test. I do not think there was any difference as to flow of milk. Their health has been good. No animals lost since. I had not lost any before for a long time.

I should not be willing to use milk from cows that were not tested.

Yours truly,

L. W. NEWTON.

SHERBORN, MASS., Nov. 20, 1895.

F. H. OSGOOD, Chairman.

DEAR SIR:—Referring to yours of recent date, would say that on the 15th of October, 1895, my herd of twenty-five Jersey cattle, of which fifteen were cows in milk, were tested with tuberculin. Only one was found diseased and condemned. I watched very closely, but could see no diminution in flow of milk. All have appeared to be in the best health since. Have lost no animals since the test, and had lost none in a long time before. I am perfectly satisfied with tuberculin, and sincerely hope that its use may be continued until tuberculosis is stamped out. Am free to say that one year ago I was opposed to the compulsory use of tuberculin, but am now fully converted.

Yours truly,

N. B. DOUGLAS.

SUNDERLAND, Nov. 25, 1895.

Dr. F. H. OSGOOD, Chairman Board of Cattle Commissioners.

DEAR SIR:—Yours of October 28, making inquiries about my cows that were tested with tuberculin, was duly received. Of the nine cows you tested, two were condemned and killed by your order, both proving tuberculous. The other seven I sent to the slaughter in October, none of which proving diseased when dressed, I have no reason to think that the tuberculin injured them. All of these cows had been served during the winter and intended for fall cows. But as appearances indicated that they would not come in and be new milch till mid-winter, too late for my purpose, I had them dressed. I lost one in September which had been sent to the slaughter with others. I am satisfied that tuberculin is a good (and I see no reason why not safe) diagnostic.

Truly yours,

CHARLES K. SMITH,
per J. M. S.

SOUTHBOROUGH, Nov. 26, 1895.

Dr. F. H. OSGOOD.

DEAR SIR:—I never have had my herd of cows tested. My herd at present consists of twenty-four cows and one bull. Eleven of the cows and

the bull are tested stock, and all appear in a healthy condition. Tuberculin affects a cow in milk for a time after its use, but is of no lasting injury to them. This has been my experience.

Respectfully,

GEO. C. FISHER.

THOMPSON'S ISLAND, NOV. 21, 1895.

FREDERICK H. OSGOOD, Esq., *Chairman Board of Cattle Commissioners, 52 Village Street, Boston, Mass.*

DEAR SIR:—I have your communication in regard to the health of cattle tested with tuberculin, and in reply will say that our herd was tested May 26 and retested July 7, 1895. The herd then consisted of twenty-three animals, seventeen of which were milch cows, and four were condemned as tuberculous. We have noticed no difference in the milk product before and after the test, nor in their general health. Have lost one animal since the test. She had no particular disease, was in poor condition before. Had lost two animals in the same length of time prior to the use of tuberculin. We cannot trace any bad results to it, and see no reason why it is not a good thing.

Truly,

C. H. BRADLEY, *Superintendent.*

TRURO, MASS., Dec. 2, 1895.

Dr. FREDERICK H. OSGOOD.

DEAR SIR:—In reply to your letter asking for information in regard to cattle, will say: I have two cows. They were tested and branded last spring. At the time one was not giving milk. The other had a calf a few days old. I think they gave the usual amount of milk after the test, and their health has been as good as before the test.

Very respectfully,

DAVID D. STOCKER.

FREDERICK H. OSGOOD.

TRURO, MASS.

DEAR SIR:—I have received your letter asking about my herd. My herd was branded last spring, and was tested a week ago by Mr. J. S. Rich. I have four head, two cows, two heifers; had two giving milk, but one dried. I did not find any difference in the milk. They have enjoyed perfect health. Did not lose any. I think that my herd is free from tuberculosis.

Truly yours,

F. B. PERRY.

TRURO, MASS., Nov. 18, 1895.

FREDERICK H. OSGOOD, *Chairman Board of Cattle Commissioners.*

DEAR SIR:—Replying to yours of October 28, I will state that our cattle were tested in April last, and consisted of about two hundred and twenty-five animals. About one hundred and fifty of them were milch cows. None were found to be tuberculous. Some owners have complained that their

cows dried up earlier than in former years, and are inclined to attribute it to tuberculin, but I think it might be owing to a dry spell which spoiled the pure feed. So far as I am able to judge, the health of the animals on the whole has been fully as good as in former years. But two or three cows have died since being tested, and only one of their owners attributed the cause to tuberculin. I have talked with several of the owners of the largest herds, and they say, aside from the fact that their cows gave less milk immediately after the test, they have seen no difference in their cows. I have noticed no difference in mine. In relation to the cow which the owner claims died from being treated with tuberculin, I am not fully able to give you a full account of her symptoms, but will do so later.

Very respectfully,

JOSIAH F. RICH.

VINEYARD HAVEN, Nov. 18, 1895.

FREDERICK H. OSGOOD, *Chairman Board of Cattle Commissioners.*

DEAR SIR:—In reply to yours of 28th of October, would say that my herd was tested in February, 1895; that it consisted of four animals; that none were condemned as tuberculous; that they were all milch cows; that there was no appreciable difference in the product of milk before and after the test; that their general health has been good since that. I have lost no animals since the test. I lost no animals in the same length of time before the test. From my own experience I see no objection to the use of tuberculin as a test.

Very respectfully,

ALEXANDER SMITH.

WARWICK, Nov. 10, 1895.

State Board Cattle Commissioners.

SIRS:—Your circular in relation to my cattle which were tested with tuberculin was duly received, but in some way it got mislaid among some other papers and have just found it. Will try and answer some of the inquiries now.

Had six cows and one bull tested, last of last June. None of them were found to be tuberculous. If there was any difference in the yield of milk before and after the test, it was so slight I could not perceive it; could not see that it affected their health at all at the time; nor has it at any time since. Lost one of the cows about the middle of November. She got into a lot where there was a quantity of unpicked cider apples which had been frozen. She probably ate all she could hold; did not find her till the next day, when she was so far gone I could not save her. I do not think the tuberculin test was in any way responsible for her death. Don't suppose under the circumstances it could be expected that it would save her life. It is very seldom that I lose any animals except it be by accident. At the time the animals were tested they all had more or less of a cough at times. I could not help feeling that they might be tuberculous, but the test did not indicate anything of the kind. As I have long had a favorable opinion of the test, I felt relieved at the result. The cough did not last but a few weeks, which I think indicates there was some other cause for it than tuberculosis.

Respectfully yours,

J L. STOCKWELL.

F. H. OSGOOD.

WEST HARWICH, Nov. 20, 1895.

SIR:—Cows tested April, 1895. Consisted of ten. Condemned, none. Nine milch cows. Milk increased after. General health since test, good. Lost none since test. Have not lost any cattle before or since test. I think tuberculin is a grand good thing. I wish you would come again.

Yours respectfully,

G. T. SISSON.

WEST TISBURY, Nov. 22, 1895.

DEAR SIR:—I do not keep but two cows. They were tested, I think, in February. They stood the test all right. The milk product was about sixteen quarts per day. I did not notice any difference in the product of the milk. Their general health has been good. I have never lost any animals from any disease. I think tuberculin is a very fine thing.

Yours very truly,

H. WEEKS.

WEST TISBURY, Nov. 18, 1895.

DEAR SIR:—My herd was tested some time in December, about the middle I think. It then consisted of eleven head, of which none were condemned. There were two cows in milk. I could see but little if any difference in the product of milk and their health has been good since. I have not seen the first sign of ill health in one of them, therefore have lost none. I have a very high opinion of tuberculin as used in my herd, and as I have been interested in the use of it I have observed the effect of it in other herds and can see no ill effects from the use of it.

Yours respectfully,

GEORGE HUNT LUCE.

FREDERICK H. OSGOOD, *Chairman*,
CHARLES P. LYMAN, *Secretary*,
MAURICE O'CONNELL,
LEANDER F. HERRICK,
CHARLES A. DENNEN,

Board of Cattle Commissioners.

